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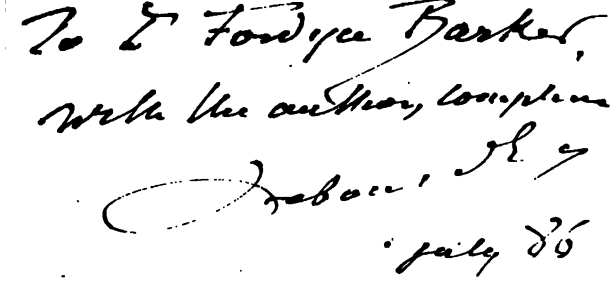

MEDICAL GUIDE

TO

CONTREXÉVILLE

WORKS BY THE SAME AUTHOR.

Des Eaux minérales de Contrexéville et de leur emploi dans le traitement de la Goutte, de la Gravelle, etc. Paris, Ad. Delahaye, 1869.

Des Gravelles rares. Paris, Delahaye, 1872.

Traitement de l'Uréthrite chronique par l'eau de Contrexéville. Paris, Delahaye, 1874.

De la Fragmentation spontanée des pierres dans la Vessie, communication au congrès international de médecine de Bruxelles, 1874.

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Traitement de l'Incontinence essentielle d'urine chez les enfants, par l'eau de Contrexéville à l'intérieur: mémoire présenté à l'Académie de médecine, 1880.

Paris — Printed by A. Hennuyer, rue Darcet, 7.

MEDICAL GUIDE

TO

CONTREXÉVILLE

(VOSGES)

BY

Dr DEBOUT D'ESTRÉES

Médecin inspecteur des eaux de Contrexéville,
Lauréat de l'Académie de médecine,
Membre de la Société d'hydrologie médicale de Paris, etc.
Chevalier de la Légion d'honneur.

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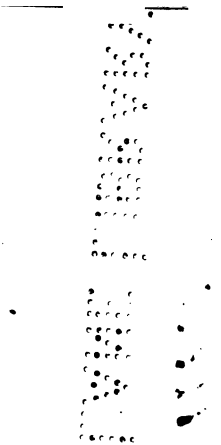

1883

TO

ALFRED BARING GARROD, M.D.-F.R.S.
Fellow of the Royal College of Physicians,
Consulting Physician to King's College Hospital,
Late Professor of Therapeutics
at King's College, London.

Permettez-moi, très honoré Maître, de placer, en tête de ce modeste petit livre, résumé de quinze années de pratique aux Eaux minérales, la véritable école des maladies chroniques, votre nom, aussi connu et estimé en France que dans votre pays, et d'acquitter pour une faible part la dette de reconnaissance que vous doivent mes compatriotes pour vos excellentes leçons.

Votre bien profondément reconnaissant

DEBOUT D'ESTRÉES.

Paris, avril 1883.

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PREFACE

TO THE ENGLISH EDITION

I fulfil a wish expressed by several distinguished English physicians, whom a visit to Contrexéville has enabled to make on their own person a trial of the good effects of the mineral waters in gravel, gout, diabetes, diseases of the liver and of the bladder, by offering my fellow-practitioners and their patients this translation of my *Medical Guide,* a concise summary of fifteen years of practice at this hydro-mineral station of the Vosges.

Although frequented before 1789 by members of the English nobility, as is proved by the building which still bears the name of *Château des Anglais,* our poor spring, notwithstanding its efficacity, was

very near becoming one of the victims of the great revolution and of the wars of the first Empire. It is only recently that English patients have begun once more to visit Contrexéville and have induced their friends or acquaintances to resort to the spring from which they themselves had obtained such good results.

But the English medical body knows little about Contrexéville, and no English work has brought to the notice of our fellow practitioners the benefit which their patients might derive from these mineral waters. It is in order to render their task easier that I offer them, in a few pages, all the information which they may desire in this respect. They will even find here, under the head of *General Information,* all the necessary extra-medical details, such for instance as those concerning the itinerary to Contrexéville, the hotels, the baths, douches, the Casino, the theatre, etc.

Although published in the form of a

translation, this is in reality a third edition of my Guide, abridged in certain parts of little interest for the English readers and containing on the other hand new matter more important for the medical practitioner, whose attention I call to the results obtained in cases of incontinence of urine in children, results which are here presented in a summary of a memoir read in May 1881 before the *Académie de médecine* of Paris. I also point out the cases of *parotid gout,* described here for the first time and which had not as yet been brought to the notice of medical men in any treatise or pamphlet on gout.

As this work is especially addressed to medical practitioners and to their patients, I have discarded all discussion either on the formation of uric acid or on the origin of renal phosphatury, which I have spoken of at length in a memoir on the " Causes of Gravel " read before the *Académie de médecine* of Paris (april 1876).

I could scarcely speak, in a *Medical Guide,* of the questions which have been so well studied by Dr. Garrod in his recent lectures on uric acid its bearing on the functions of the kidneys, the causes of its precipitation, its different crystalline forms; but I hope to be able to supply this learned experimentalist with interesting documents concerning the last question, in the shape of drawings of numerous microscopical preparations made by me at Contrexéville from various patients affected with the uric diathesis.

Here is, on the whole, the language I am in the habit of addressing at Contrexéville to such patients, in order to reply clearly and concisely to the questions with which they overwhelm me :

Your blood contains an excess of uric acid. This uric acid may give rise to *gout* if it lodges in the joints; to *gravel* if it agglomerates in the kidneys, and to dif*ferent eczemas* if it attacks the skin. It is

necessary to expell it through the three following ducts : the kidneys, the intestines, or the skin; the treatment of Contrexéville answers the two first indications; exercise and frictions will fulfil the third.

I think however that English doctors will understand more easily than other members of the medical profession the good effects obtained from a *calcareous* mineral water in the treatment of the uric diathesis. Indeed, is it not from England that, towards the middle of the last century, thanks to the impulse given by Robert Whitt, came the idea of using calcareous alkalines in the treatment of the uric diathesis? The remedy for which Mrs. Stephens, about the same time, obtained a reward from the British Parliament, was it not also a calcareous one, since it consisted in the use of pounded egg-shells?

They can also understand very easily that the mineral waters manufactured in the great laboratory of nature introduce into

the human economy mineral principles which are combined in such a special manner that they become more readily assimilable, and that this facility of assimilation gives them an efficacity out of proportion with their mineral properties.

I cannot conclude better than by quoting a well known axiom of Bordeu :

All chronic diseases which cannot be cured by mineral waters may be considered as incurable.

DEBOUT D'ESTRÉES, M. D.

Paris, April 1883.

GENERAL INFORMATION

GENERAL INFORMATION.

The new itinerary. — Rate of prices : baths, douches, etc. — The casino and the theatre. — Hotels and furnished lodgings.

On the 1st of March 1881 was inaugurated the railway line which reaches Contrexéville and which has produced a great change in the route followed until then by patients coming from Paris, from the south or from the north. This line — *ligne de Chalindrey à Nancy* — leaves the great line of the *Chemin de fer de l'Est* from Paris to Belfort, at the station of Langres and turns in a northward direction towards Contrexéville, as will be seen in the adjoining map.

The itinerary from Paris to Contrexéville is therefore the following one :

Chemin de fer de l'Est, line from Paris to Belfort, branch-line from Langres to Nancy, station of Contrexéville.

For travellers coming from *London* and *England*, the best route is through Paris. Nevertheless they may go to Contrexéville through Amiens, Laon, Reims, Nancy and Mirecourt.

From *Brussels* the traveller arrives through Luxembourg, Metz, Nancy and Mirecourt.

During the season there are special carriages which spare the traveller coming from Paris the trouble of leaving the train.

For the hours of departure and arrival, consult the railway guide ; travellers residing in Paris will moreover find at the office of Mr. Adam, agent for the sale of the Contrexéville waters, 31, *boulevard des Italiens,* all the requisite information, and those who live in London can apply to Mr. Gallais, 27, Margaret street, Regent street, W.

Formalities to be fulfilled by persons who wish to make use of the mineral waters.

No patient is allowed to drink at the springs of the hydro-mineral establishment of Contrexéville unless he has presented himself at the office which is opened in the inclosure of the spring of the Pavilion, and paid the sum of 20 francs for the right of using the mineral waters.

He will receive in exchange a personal card which he must show when called upon to do so by an agent of the Company.

It is also at this office that tickets are delivered for baths or douches according to the following rate :

Mineral baths	1f50
First class bath, with sitting room	2 50
Ascending douche	75
General percussion douche	1 50
Hip-bath in running water	1 50
Mineral bath taken at home	3 »

The price of the bath includes a bathing-gown and two towels; the following are the charges for supplementary linen :

A towel	10 centimes.
Linen bathing-gown	15 —
Woollen bathing-gown	25 —
Linen for the bottom of the bath	20 —

The bath-rooms are open from 5 to 10 o'clock a. m., and from 1 to 5 o'clock p. m.

A bath lasts one hour.

A douche lasts 15 minutes. When this limit is exceeded, the administration can claim a second ticket for a bath or for a douche.

Prices of the water from the springs of the Pavilion or la Souveraine.

A case of 50 bottles	33f90
A case of 25 bottles	18 25

Orders are forwarded payable on delivery, for France; foreign orders are forwarded on receipt of a post-office order or of a cheque at sight on a Paris banking-house.

The orders should be addressed to the Director of the Establishment at Contrexéville, or to the *Dépôt central,* 31, *boulevard des Italiens,* Paris.

CASINO OF CONTREXÉVILLE.

Director : MR. AURÈLE.

On the 1st of June 1881, the salons of the new Casino were inaugurated, and they offer the visitors all the comforts which they have the right to expect in such an important station as Contrexéville.

THE THEATRE.

The company, numbering twenty-five actors and actresses, performs four times a week : sunday, tuesday, wednesday and friday; thursday is devoted to dancing music; monday and saturday are reserved for artists who pay a flying visit to Contrexéville, for benefits, concerts of foreign artists or various other performances, such as prestidigitation, etc. Besides, the orchestra plays every day in the kiosk, — in the morning from 8 to 9 o'clock, and in the evening from 3 to 5.

The subscription to the Casino, for a season of twenty one days is :

For one person.....	30 fr.
For two persons.....	45
For three persons..	60
For a family	80

The subscriber can claim admittance to all the theatrical representations, to the reading and billiard rooms, etc. Non subscribers pay 3 francs for each admittance.

A telegraphic office, where the prices of the Exchange market are posted up every day, has been opened in the establishment.

The post-office delivers letters four times a day; letters posted in Paris before six o'clock are delivered at Contrexéville at 8 o'clock the next morning, as well as the evening papers; the last post for Paris leaves at 6.20 p. m.

The above informations are sufficient, we think for those who wish to visit Contrexéville. If not, however, they need only apply by letter to the Director of the Establishment at Contrexéville (Vosges), or if they reside in London, to Mr. Gallais, 27, Margaret street, Regent street, W.

As the season begins May 20th, strangers who cannot arrive before the 15th of June will do well to secure a lodging beforehand. This precaution is indispensable from the 1st of July.

HOTELS.

* Grand Hôtel de l'Établissement, kept by M. MOREL.
* Hôtel *de la Providence*, kept by Mme CHEVET.
* — *de Paris*, kept by SCHUHKRAFT.
— *Martin-Mansuy*, kept by F. MARTIN.
— *des Apôtres*, kept by BLAIZOT.
— *Parisot*, kept by PARISOT.
— *Martin aîné*, kept by A. MARTIN.
— *du Vair*, kept by BERNARD.
— *Harmand*, kept by HARMAND.
— *de France*, kept by MONGEOT.
— *du Pavillon*, kept by COLSON.
— *du Parc*, kept by PICARD.

LODGING HOUSES.

Maison FOURNEAUX.
— veuve LEPAGE.
— Gustave LEPAGE.
— Barthélemy CHRÉTIEN.
— MAUCOTEL.
— CONTAL.
— GARION.
— PERRUT.
— BACHMANN.
— veuve LEGUEN.
Maison MARTIN-VILLEMAIN.
— MANSUY-VUILLAUME.
— DAVIGNON.
— GRANDVALLET.
— F. PARISOT.
— veuve ROBIN.
— JUVIN aîné.
— JUVIN jeune.
— MANUSSIER.

* English is spoken at these hotels.

BRUXELLES
AIX-LA-CHAPELLE
LIÉGE
MONS
NAMUR
COBLENTZ
TRÈVES
LUXEMBOURG
SEZANNE
LAON
REIMS
PARIS
VERSAILLES
CHALONS
BAR-LE-DUC
METZ
NANCY
STRASBOURG
MELUN
TROYES
EPINAL
CONTREXEVILLE
COLMAR
ORLEANS
AUXERRE
CHATILLON
VERDUN
BLOIS
DIJON
BESANÇON
BALE
SOLEURE

MEDICAL GUIDE

TO

CONTREXÉVILLE

CHAPTER I.

Topography of Contrexéville. — A few words about the past. — The present establishment. — The new casino and the theatre. — How a patient spends the day. — Walks and excursions.

Contrexéville, a village which in the last century formed part of the kingdom of Lorraine, belongs now to the *département des Vosges* and to the district of Mirecourt.

Situated at 300 kilomètres from Paris, 27 from Mirecourt, 28 from Neufchâteau, 36 from Bourbonne-les-Bains, 56 from Plombières, Contrexéville is one of the stations of the strategical railway which, passing through

Mirecourt, joins Langres to Nancy and leave the great line from Paris to Mulhouse a Langres.

Though situated in a valley open from th north to the south, it rises more than thousand feet above the level of the sea. Thi situation causes sudden changes of tempe rature, especially in the morning and th evening. Therefore those who visit Contrexé ville should provide themselves with woolle garments, even in the month of July.

The village is watered by a little river, th Vair, which, very quiet in summer, become a torrent when the snow melts. It then over flows its embankments, and has more tha once laid waste the handsome grass-plots o the park which it runs through before throw ing itself into the Meuse, at Domrémy-la Pucelle.

The soil of Contrexéville, essentially calca reous, belongs to the muschelkalk period. The geologist in his walks will be able to collect samples of the numerous fossils of that period.

A bed of green clay, the thickness of which

does not exceed one mètre, spreads at a depth of about four mètres over the whole valley of Contrexéville. It makes way for the mineral springs and the wells penetrate into this clay, so that the springs are protected against any mixture with rain water.

The history of Contrexéville has little interest beyond that of its mineral springs. All we know is that the village was burnt by the Swedes during the Thirty years' war and that the fire only spared the tower of the church. The present church has nothing remarkable; the tower, of the romane style of architecture, is the only part the origin of which can be traced back to the tenth century.

Though the peculiar properties of the Contrexéville waters have been known time out of mind by the inhabitants of all the neighbouring villages, they were only revealed to the medical world by the report read before the Society of Sciences and Arts of Nancy, on the 10th of January 1760, by Dr. Bagard, head physician to Stanislas, king of Lorraine.

This report, from which we quote the following passage, shows that, more than a cen-

tury ago, Contrexéville was already visited not only by patients suffering from *gravel* and *diseases of the bladder,* but also by those afflicted with *gout* or with *liver complaints.*

« The mineral waters of Contrexéville are a sovereign remedy in diseases of the kidneys, of the ureter, of the bladder and the urethra, — stone, gravel, glair, suppuration. We can assert that these waters are efficacious against the stone which they loosen and drive out of the bladder, when the stone is not of a considerable size; that they dissolve and break larger stones, when the latter are chalky. We keep a list of patients of all ages who, during several years, have got rid of a stone through the effect of these waters.

« They prevent fresh attacks of gout by restoring the suppleness of the nerves and of the membranous parts which the disease has dried up.

« As these waters contain ferruginous matter, a mineral acid and soap, they will be very useful in cases where the bile becomes too thick and where the liver is obstructed — the more so as these waters are purgative ».

This quotation, which reminds one of the medical style of the period, will enlighten the members of our profession who fancied that the discovery of the good effects of the Contrexéville waters in liver complaints was a recent one, and who were surprised by the results obtained by us — results which will be found in our communication to the *Société d'hydrologie médicale de Paris* (1).

After Dr. Bagard, Dr. Thouvenel was sent to Contrexéville in 1774 by Mr. Rollin, inspector of the mineral waters of France. He analysed the springs and drew his patients from the court of Versailles. Houses were built and furnished by many noblemen—among others by Prince de Poix, the Bauffremonts, the Lignévilles. English visitors built the large edifice which is still called, in the country, *le Château des Anglais.*

This was not all. As pleasant walks and drives, gay balls got up at a moment's notice were no longer sufficient to satisfy rich visitors accustomed to the splendours of the

(1) *Traitement des coliques hépatiques à Contrexéville;* Paris, V. Delahaye, 1878.

French court, Prince d'Hennin built, at his own expense, a theatre which has now disappeared and which once reckoned Count d'Artois among its audience and among its amateur authors some of the greatest names of France.

After 1789, the poor spring which Necker, when minister, had wished to purchase for the state, was completely abandoned and we find it, in 1830, with 109 visitors. In 1860, the thousands of strangers who now repair to Contrexéville, only amounted to a few hundred.

We must here state that in 1864 a group of capitalists, headed by Mr. Fould, the able minister of finance, who had been struck by the results obtained under his own eyes at Contrexéville, became the owners and began by spending a million of francs in improvements. New springs were captured, a new establishment for baths and douches, a first class hotel were built; the park was enlarged and embellished. Such were the first and important changes due to this powerful company. Since then a praiseworthy emulation

has inspired the inhabitants of the country. Large and handsome hotels have risen in the place of those which could no longer minister to the comforts of a constantly increasing number of patients.

The establishment, with its beautiful park, occupies almost one half of Contrexéville. It is crossed by the little river Vair, which takes it source in the village and receives, in the park itself, a tributary stream, named Suriauville. Round the establishment are grouped l'*Hôtel de la Providence*, l'*Hôtel de Paris*, l'*Hôtel Martin-Mansuy*. On the left side of the little river are the Hôtels *Parisot* and *du Vair*; on the right side, those of *Martin aîné, des Apôtres, de France, Harmant, du Pavillon, du Parc*, follow one another. Numerous lodging-houses complete the ressources offered to strangers. Along the Neufchâteau road, you meet those kept by Mansuy, Contal, Lepage, Manussier, Barthelemy, Leguien, Mancotel, and Garrion (1).

(1) English is spoken at the Grand Hôtel de l'Établissement, at the Hôtel de la Providence and the Hôtel de Paris.

Mr. Rolland, the former mayor, and Mr. Lassauce, the present mayor of Contrexéville, also offer lodgings to strangers. Their example is followed by many other inhabitants of the village, the list of whose names would be too long and would soon be incomplete, for it increases each year.

Notwithstanding this great number of lodgings those who intend to visit Contrexéville, especially in the month of July, must not neglect to secure an abode beforehand, for at that time of the year new-comers might find it difficult to obtain accommodation.

Among the latest improvements rendered necessary by this increasing concourse of visitors we may mention the new Pavilion built in 1882 and the new covered gallery where are to be found well filled shops which would not be out of place in any large city. The crockery-ware and embroidery work of Nancy, the laces of Mirecourt, the cutlery of Langres contend for the favour of strangers who wish to carry away a sample of the industry of the Vosges.

The construction of a kiosk where the band

of the Casino plays twice a day, from half past seven to nine and from three to five o'clock, has been much approved of, especially by the friends or relations who accompany the invalids.

The innovation which has given the greatest pleasure to the numerous frequenters of Contrexéville has certainly been the inauguration, in 1874, of an elegantly decorated theatre where every night they applaud an excellent company of actors which has already furnished several stars to the most popular stages of Paris.

Lastly, arrangements have been made in order to satisfy the numerous sportsmen who frequent Contrexéville and who until now have complained of being unable to organize pigeon shooting matches.

This guide is intended for the information of readers who have not yet visited our station ; we therefore deem it useful to describe how a patient spends the day at Contrexéville.

Here, as in other watering-places, people rise early. At five or six o'clock the beds are

all empty and their former occupiers quickly dressed. We must here remind them that light garments should be discarded, for the height at which our village is situated makes the mornings and evenings chilly, especially during the great heats of July and August. Once warmly clad, the patient goes down to the spring in order to empty the number of glasses prescribed by his medical adviser. Between each glass, he takes a walk in the lovely park, chatting with a friend, listening to the orchestra installed in the kiosk which occupies the centre of the park, and endeavouring not to forget the hour. The patients have also to remember the number of glasses which they have absorbed, and each keeps his account in a different way. One passes through his button-hole a sprig bearing as many leaves as he has glasses to drink; another, when he has emptied a glass, makes a notch in his walking-stick, which at the end of the season forms the ledger of the doses absorbed; a third simply purchases a little reckoner, shaped like a child's toy-watch. Towards half past eight the water drinker has

fulfilled his morning duty; at nine he goes back to his room, takes a short rest, dresses and goes down to enjoy his breakfast, which is served at ten o'clock and impatiently looked for.

After breakfast (at which the visitor will do well to restrain his appetite, for unfortunately one always feels rather ravenous at Contrexéville), the guests take their coffee in the open air, under the trees, read the evening papers, which are delivered shortly before breakfast and prepare their letters for the post. Then they start for a walk or a drive which lasts until a douche, a bath or a second visit to the spring calls them back to the establishment.

After the douche another walk, which is indispensable in order to produce a reaction, round the orchestra stand or in the neighbouring woods; at six o'clock the dinner, at eight the theatre, at ten back to bed and a good rest after a well employed day.

We shall now point out the walks or the drives which may be taken in the vicinity of Contrexéville.

The pedestrians can wend their way towards

the little village of *Outrancourt* (2 kilomètres), the charming valley *des Paquis*, on the right of the road to Bulgneville (same distance), the fountain of *Rond-Buisson* (3 kilomètres), the woods of *Suriauville*, *Vittel* and *Bulgneville* and the fountain of *Champ-Callot*, where a rustic shelter, built by the Contrexéville Company, will allow them to breakfast in the open air, in a wood of splendid oaks, in the neighbourhood of a cool and limpid fountain (3 kilomètres). Those who prefer shorter walks will, almost without leaving Contrexéville, find a quiet retreat in the parks of *la Glacière* (unfortunately intersected by the railway) and of *Bellevue*, whence they may survey a broad and varied landscape in the midst of which rises the steeple of Saint-Remimont, a village dear to those who walk in the steps of old Izaac Walton and are fond of angling.

The following are the principal drives around our station :

Viviers. At 7 kilomètres from Contrexéville, stretches across the valley of Viviers ; it is a most pleasant drive to go there through Dom-

brot, Viviers and to return through Marcy, Lignéville and Haut-le-Salin. From the heights of Haut-le-Salin the eye embraces an immense horizon towards the mountains of the Vosges and of the Jura.

Bonneval (10 kilomètres). The road to the pretty valley of Bonneval, which contains the ruins of an ancient priory, is less known to the inhabitants of Contrexéville than the two following ones; it is nevertheless a charming drive.

Chèvre-Roche (12 kilomètres). The hermitage of Chèvre-Roche is built on a rock in the middle of a picturesque valley; it is celebrated as having been the residence of cardinal de Retz during his exile.

Saint-Baslemont (12 kilomètres). The castle, a very ancient construction, stands as well as the church, on the slope of the wide table-land. It was besieged in 1625 by the Swedes. A part of the castle still remains, together with two high towers. A broad terrace runs along the fortifications.

In a forest, near this village, are to be seen the ruins of a small castle called *les Tours*

Séchelles, which is supposed to belong to th gallo-roman period and which was the resi dence of the knight-templars before it wa destroyed by the Swedes.

Le Chêne des Partisans (14 kilomètres). Thi gigantic oak, the foot of which has a cir cumference of 13 mètres, rises 33 mètre above the ground and its branches cover space of 23 mètres. It has grown on the bor der of the forest of Saint-Ouen, near the vil lage of Vacheresse. It overlooks all th other trees of the forest and from a distanc might be taken for an old tower. Its trunk though conoidical, is not hollow and its im mense dome does not present a single dr branch.

It is under this tree that the partisans o Lorraine used to meet during the siege of L Mothe before they went forth to plunder the French frontier or to harass the hostile troops

Château de Houécourt (11 kilomètres). This is a very old castle which formerly belong ed to Marshal Philippe-Emmanuel de Li gnéville and more recently to Duc de Choi seul ; it is now the property of Duc Marmier.

In the chapel of the castle are buried Marshal de Lignéville (1745), the heart of Princess de Craon (1775) and Duc de Choiseul, one of the benefactors of the locality.

In order to reach this spot, the tourist passes through the villages of Mandres and Saint-Remimont. The latter is a favourite resort, especially for anglers, who fish near a mill situated at one kilomètre beyond the village.

At a greater distance from Contrexéville the tourist can also visit :

Mattaincourt (24 kilomètres), at 3 kilomètres from Mirecourt. The tomb of « the blessed Father Fourrier » (curate of this village in 1597), is the object of a celebrated pilgrimage to Mattaincourt.

Ruines de la Mothe (25 kilomètres), an ancient city of Lorraine, besieged several times and razed in 1645 by Marshal de Villeroi. It was at the siege of La Mothe, in 1634, that shells were first used.

Domrémy-la-Pucelle (35 kilomètres). The railway renders easy a visit to the birth place of Jeanne d'Arc, which is situated beyond

Neufchâteau. The house of this famous he roine has been preserved as an historic monument.

There are other still longer excursions which can only be undertaken by patients who have to interrupt their treatment during a few days or by those who are leaving Contrexéville. We mean the mountains of the Vosges, almost unknown to our countrymen, many of whom have visited Switzerland and Italy.

The itinerary to be followed in this case is the following : Bains and Plombières, the *Val d'Ajol*, the *Vallée des Roches*, the lakes of Gerardmer — a Switzerland in miniature more familiar to English tourists than to our countrymen and where are to be found elegant cottages in which lovers of the picturesque delight to spend the summer months; — the lakes of Longemer and Retournemer, situated at a considerable height and which rise over the craters of extinct volcanoes; the excursion may be extended as far as the Schlucht by those who are not averse to crossing a frontier which reminds us of all the last war

has cost us. But even without leaving France the tourist will return delighted with this picturesque country which certainly deserves to be much better known.

CHAPTER II.

The springs. *Sources du Pavillon, du Prince, du Quai, la Souveraine.* — Physiological effects. — Different ways of administering the waters : baths, douches, etc.

Contrexéville possesses six springs. Two of these, carefully captured in the vicinity of the principal source, are not used ; the abundance of the latter, which does not much differ from them in its component parts, amply supplies all the requirements of the station.

The four others bear the names of *source du Pavillon, du Prince, du Quai, la Souveraine.* An imperial decree, dated july 1860, confers on the *Source du Pavillon* the privileges enjoyed by establishments from which the public derives a general benefit.

Source du Pavillon.

Situated in the middle of the park, under a new and very elegant pavilion with three

adjoining galleries in which the water-drinkers saunter, the principal spring of Contrexéville falls, through six copper cocks, into a sand-stone basin. The surplus of the water flows into the Vair from under an elegant artificial rock at the end of an alley of fine chest-nut trees the rustic benches of which are a favourite resort of the patients during the warm days of July and August.

Two circular steps, provided with copper hand-rails, render the access to the spring very easy.

In 1759, the spring of the Pavilion had nothing to protect it against a mixture with the rain or with the neighbouring sources but a kind of wooden box. The first serious attempt to capture the water was made in 1773, at the expense of abbé de Bouville, who after having been three times operated for stone, was cured by this salutary spring.

The last *captage*, performed in 1859, under the direction of Mr. Jutier, mining engineer, has secured the spring against all causes of waste or of deterioration, and provided ample means for the service of the drink-

ing-fountains, the baths and the douches.

Our water is cold and limpid; its temperature is invariably 11°,5 *centigrades*.

Its specific gravity, a little higher than that of distilled water, does not exceed 1,025.

It has a slight ferruginous taste which it loses when removed to a distance.

It produces scarcely any effect on tincture of litmus, but it gives a greenish colour to syrup of violets.

When exposed to the open air, it is soon covered with an irisated film, which disappears if the water is shaken.

The stone reservoir into which it falls, the pipes through which it passes, whatever is thrown into it are rapidly covered with an ochry coating ressembling rust. A glass, after remaining in the fountain during ten days, has the appearance of rusty iron and the deposit, which is formed by carbonate of iron mixed with carbonate of lime, adheres closely to the glass.

Since the *Mémoire chimique et médicinal* published by Thouvenel in 1774, numerous analyses were made in order to discover

the composition of the water from the spring of the Pavilion, by Mr. Nicolas in 1820, by professor Fœdéré (of Strasburg) in 1822, by Colard de Martigny en 1828, by Ossian Henry in 1852, and by Debray, now a member of the *Académie des sciences,* in 1864. Lastly, in the month of December 1878, I thought it necessary to complete, by a spectral analysis, the researches of my illustrious predecessors. Mr. Wilm, director of the chemical studies of the Faculty of Paris, was kind enough to help me with his valuable advice.

I must also mention Mr. Chevalier and Mr. Gobley who, in 1850, were commissioned by the Academy to discover arsenic in the mineral springs of France, and Mr. Niklès, who, in 1867, detected the presence of *fluorine* in the springs of Contrexéville.

We need only give here the analysis of Mr. Debray, the most complete as well as the most exact of all. Our own researches with Mr. Wilm have entirely confirmed it in every respect, especially as concerns the presence of those minerals omitted in all former analyses — *lithium,* for instance — and others.

such as *strontiane*, which had been wrongly added. A few differences, particularly as regards the quantity of chloride of potassium (0,0163 instead of 0,006) are not important enough to induce us to discard the analysis of the learned professor favour of our own.

Analysis of the spring of the Pavilion.

Free carbonic acid	0,080
Bicarbonate of lime	0,402
— of magnesia	0,035
— of iron	0,007
— of lithium	0,004
Sulphate of lime	1,165
— of soda	0,236
— of magnesia	0,030
Silica	0,015
Chloride of potassium	0,006
— of sodium	0,004
Fluoride of calcium	traces
Arsenic	traces
	2,384

As to the spectral examination, without entering into the details of the long and numerous operations which it rendered necessary, we shall merely state that it enabled us to discover :

The green ray of sodium.

The red ray of lithium.

The red ray and violet ray of potassium.

No traces of cœsium, of rubidium or of strontia.

Springs of the Prince and of the Quai.

According to the advice of Dr. Thouvenel and by the care of Prince de Poix these two springs were captured shortly after that of the Pavilion. The prince, who had built a summer-house in the neighbourhood, was the god-father of one of them ; the other was named *Source du Quai* because the well which isolates it was partly dug on the border of the river.

The *captage* and working of the springs were again taken up by Mr. Jutier in 1859, and since 1869 an elegant marquee protects the water drinkers, especially the ladies, who are numerous, at the *Source du Prince*, which is also called *Source des Demoiselles*.

This latter spring yields 12 *litres* per minute and the *Source du Quai* 67 litres.

The physical properties of the water which they supply are almost the same as those of the spring of the Pavilion.

An analysis of the sediment of these springs; carefully made in 1857 by Mr. C. Lepage, assisted by Mr. Baudrimont, shows the difference existing between them.

Five *grammes* of the sediment left by each of the springs have given :

	SOURCE du Pavillon.	SOURCE du Prince.	SOURCE du Quai.
Water.....	0,121	0,145	0,170
Silica.....	2,1225	0,633	2,005
Aluminium.....	0,297	0,258	0,217
Sesqui-oxide of iron.	0,990	1,210	1,060
Carbonate of lime...	0,565	0,742	0,735
Magnesia.....	0,232	0,256	0,278
Metallic arsenic.....	0,0009	0,002	0,0015
Organic matter.....	0,705	0,951	0,0585

A mixture of protoxide of iron with a liquor of hyper-manganate of potash, of which 64 divisions represent 2 *centigrammes* of pure iron, has given as result, acting on 5 *grammes* of the sediment, the discoloration of :

Pavilion.	Prince.	Quai.
687	725	525 divisions

of this liquor. The *Source du Prince*, it is seen, contains more iron, and the *Source du Quai* a little more magnesia than the spring of the Pavilion. For this reason the road to

the *Source du Prince* is so familiar to the married women and especially to the young girls who frequent our station, that it may well be called "the young ladies fountain".

Time out of mind, the inhabitants of the country have had recourse, in chronic affections of the eye, to this spring. For our part, during the sixteen years of our practice at Contrexéville, we have seldom had occasion to prescribe it; nevertheless, in cases of chronic conjunctivitis it has twice produced satisfactory results.

Source la Souveraine.

This spring now belongs to our hydro-mineral establishment. Like that of Vittel, it has not been known for more than twenty years and it has been the cause of regrettable conflicts raised by certain speculators who wrongly sought to put it on a par with the *Source du Pavillon*, from which it differs much more than do the springs of the *Prince* and of the *Quai*. The only reasons of its vogue were the free access to the foun-

tain and the low price of the bottled water.

We do not say that these waters have rendered no service in our station ; we only assert that in renal and vesical complaints they can never be as efficacious as those of the Pavilion. Their effect shows that they ought rather to be compared to the springs of Niederbronn, which formerly belonged to France. They must be included in the class of selenito-magnesian waters. They countain 0ᵍ,995 of sulphate of lime out of 2ᵍ,340 of mineral principles.

These waters are also cold (10 degrees) and limpid, but they do not offer the ochrous sediment which characterizes the three first springs. We may say that they contain no iron, although this metal is mentioned in the report read, in 1861, before the *Académie de médecine.*

Situated in the middle of a handsome little park which a bridge joins to an island planted with poplars belonging to the establishment, this spring flows into an oval pond through the neck of two cast-iron swans, at a distance of about 10 *mètres* from the source.

It yields 9 *litres* of water per minute.

Physiological effects.

The waters of Contrexéville stimulate all the secretory vessels, but they especially help the secretion of urine; they are diuretic, laxative and fortifying.

In the digestive organs this stimulation is at once observed to act upon the stomach. At the very beginning of his treatment, the appetite of the water-drinker increases at such a rate that it becomes urgent to restrain it. Patients who suffer from those dyspectic ailments which often precede the apparition of gout or gravel soon find their digestive functions regulated.

It is also observed that the waters, — seldom the first day, generally from the third to the fifth, according to the dose absorbed, — have on the patient a purgative effect consisting in three or four liquid stools. This purgation, which persists during the entire cure, is very well borne by the invalids who undergo it at the spring every morning and are not incommoded during rest of the day.

Necessary in most liver complaints, it is

very useful to the majority of the visitors to Contrexéville who suffer from gout or gravel. In the case of aged patients afflicted with a disease of the bladder it is the duty of the medical adviser to limit this purge. We must add however that we have never seen it produce any accident.

Sometimes, but very seldom, the water instead of causing this effect, produces constipation. In such cases it is easy, either by resorting to another spring or by adding a weak dose of calcined magnesia or an effervescent preparation to the first glass, to remove this symptom. Ascending douches may also be employed in certain cases.

In the circulatory system we also observe a stimulation which, during the first days, occasions in some drinkers a sort of inebriation. This effect however disappears after the first meal and seldom lasts long. Prince de B — is the only patient in whom we have seen it persist during his entire stay.

When a serious organic disease of the heart is known to exist, no mineral waters are to be trusted, or at least they must not be

prescribed unless their effect is carefully watched. We have been able, in the case of an old man of 84 among others, to improve a vesical catarrh notwithstanding an organic disease of the heart. But when the cardiac disorders have a gouty origin the result of the treatment is most satisfactory, as will be seen further on in the cases of Messrs. F. M—, P— and of Count de B—.

The secretion of the skin is also stimulated at Contrexéville. We have seen, in cases where the suppression of the functions of the skin had coincided with various disorders, these functions restored under the influence of the hydro-mineral cure. Certain cutaneous manifestations of the uric diathesis have completely disappeared after a cure in our station. Mr. S— de L—, who came to Contrexéville on account of violent renal colics, was relieved, immediately after the first season, of an eczema of the upper lip of three years' standing, against which numerous treatments had been tried in vain. The patient, member of an important court of justice, greatly inconvenienced by the seat of

this complaint, had spent a season at Aix and another at Cauterets without the slightest result. We must add that this eczema has not reappeared since 1872, date of the first visit of Mr. S— to Contrexéville and that the patient has got rid of his renal colics.

The tonic effect the spring of the Pavilion also acts upon the genital organs of which, according to Dr. Baud, it increases the functional aptitude.

On women its effects are still more remarkable and more easily noted. Indeed among females suffering from gravel and who have not doubled that terrible period to which Hippocrates (rightly in most cases) ascribes the appearance of gout and gravel in woman — among young women suffering from gravel, we seldom fail to discover various menstrual disorders and sometimes a total suppression of the menses. Now, the waters of Contrexéville, while ridding these patients of renal colics, restore at the same time the uterine functions, and it often occurs that these same *women*, who until then had remained barren,

become mothers after a cure at the spring of the Pavilion.

I know, for my part, four very striking examples of such cases, one of which relates to the wife of a physician residing near Nancy. Dr. Baud, who has long practised at Contrexéville says, in his last publication on that watering place : « Thanks to this functional rehabilitation and to this sanitary restoration of the genital organs, I have seen returning to this fountain, as mothers and nurses, many women who had come here barren a year or several years before. »

The action of the Contrexéville waters on the liver consists in exciting the secretion and excretion of bile, which abounds in the morning stools. The dilution of this often too compact matter, the expulsion of foreign bodies in formation in the biliary vessels explain the results obtained in the treatment of hepatic colics, as stated lower down.

It is upon the urinary organs that the principal physiological effects produced by the waters of Contrexéville are observed. They pass through the urinary vessels rapidly, but

not without modifying every part of the mucous membrane of the loins, of the ureters or of the bladder with which they come in contact. They carry off the mucus which may cover the membrane and remove or tend to remove the concretions which they meet on their way, so that at the end of the first morning visit to the drinking fountain, they are voided almost pure by the patient. It is generally after the third glass that the diurisis is established. The quantity of liquor voided is always greater than the amount of water which has been absorbed, a fact that proves the highly diuretic action of the waters.

In most cases this action lasts an hour or an hour and a half after the absorption of the last glass, but we have seen a few exceptional cases where this diurisis only began two or even three hours after drinking the water and continued during the whole of the afternoon; the micturition is easy and abundant, and when seriously disordered by an affection of the bladder, it is always notably facilitated during the ingestion of the mineral water, an improvement easily explained by the change

effected in the voided liquid and by the strength which the waters impart to the expulsing agents.

The urine which contains too much acid is brought back to its normal acidity; but above all — and this statement will cause some surprise at first — the alkaline waters of Contrexéville bring back or tend to bring back to its normal acidity the alkaline urine of phosphaturic patients or of those afflicted with a vesical catarrh. It is easy however to understand that by removing the irritation of the mucous membrane, which in most cases alone causes the alteration of the liquid, the waters restore it to a healthy condition, when it is always more or less acid.

With respect to foreign bodies contained in the urinary vessels, if their size allows their egress, they seldom resist the action of the waters and are daily found round the spring of the Pavilion, where they are voided every morning without pain.

When, on the contrary, a large calculus, unsuspected until then, exists in the bladder of a patient, the waters reveal its presence

by the irritation caused at the neck of the bladder by the efforts made to expulse it. — They therefore serve to show the presence of a stone in doubtful cases. It then becomes evident that an operation is necessary and that the mineral sources can only be useful, after the operation has been performed, in order to drive out the fragments which may have escaped the operator, and to prevent a relapse.

This diuretic effect has been authenticated in England by an eminent physician, Dr. Roy, whose investigations « On the mechanism of the Renal Secretion », published in the *Proceedings of the Cambridge Philosophical Society* (may 23d 1881) are founded on physiological experimentation and on the graphic method. The inter-venal injection of five *centigrammes* of the Contrexéville waters into the veins of a dog whose loins were placed in a metal box has demonstrated the powerful diuretic effect of this medical agent. Other physiological experiments begun by the author in the laboratory of the *Faculté de Paris* and not yet ended, seem also to

prove the action of the waters of Contrexéville on the smooth muscles and especially on the muscular coat of the urinary and bilious vessels. Clinically, this effect is already shown by the stimulation of vesical contractibility in aged patients and by the cure of incontinence of urine in children.

Lastly the tonic and fortifying effect of the waters of Contrexéville on the general health of those who have recourse to them has been the principal cause of the increasing vogue of this station. This vogue may be attributed in great part to those visitors whom the use of energetic alkalines had debilitated. The facts which we quote in the chapter on the treatment of hepatic colics would alone suffice to prove the importance and the rapidity of this fortifying influence which is felt by all our patients, whatever may be the ailment which has brought them to Contrexéville.

Secondary effects.

The patients who, for the first time, seek to be cured or relieved from their pains at a

watering place labour under an error which it is necessary to dispel. They fancy that the waters ought to produce an immediate effect, and they fall into despair when a radical change has not been obtained at the end of the season. Our honourable predecessor, Dr. Caillat, has studied and well described these effects in a memoir crowned by the *Académie de médecine*, to which he had forwarded it in June 1864. This memoir is founded on numerous observations.

These secondary effects, Dr. Caillat tells us, are determined by a spontaneous effort of the organism under the influence of the hydro-mineral treatment and characterized in many cases, as regards the kidneys and the bladder, by an abundant emission of pathological results.

The certainty of these results, in most cases at least, increases according to the energy of the treatment. They show themselves from the fifth to the sixtieth day of the cure, in general between the fifteenth and the twentieth. The ordinary length of the crisis is from one to three days; nevertheless, we have seen it last much longer.

These secondary effects are not limited to the urinary organs; they may also affect the end of the great gut, or the liver; lastly they may act on the skin in the form of profuse sweat, owing to certain predispositions of the patient or to the treatment; but, upon the whole, the urinary organs are almost always the only seat of the secondary effects produced by the medication adopted at Contrexéville.

This salutary crisis must be respected. An active medication would be inexpedient. A few simple remedies, such as baths and diluent drinks for instance, are sufficient when the bladder is irritated. We must add that a constant improvement and often a complete cure have been observed after the appearance of these secondary effects; this is surely a most promising omen.

Manner of administering the waters.

1° *Internal use.*—It is evidently to the ingestion of the waters that the good results obtained at Contrexéville are due. But

although the average dose absorbed is considerable enough, we think that the quantity which the human organism can bear has been exaggerated, for this medication, however inoffensive it may be, has caused serious accidents, owing to the imprudence of the drinkers. We insist upon this point because we too often see at Contrexéville patients who, without having taken medical advice, swallow quantities of water unsuitable to their state of health and whose recklessness or whose boldness is more or less punished (1).

In administering as a drink the water of the spring of the Pavilion it is necessary first of all to consider the nature of the disease which brings the patient to the spring. Thus uric gravel, when not aggravated by any peculiar symptoms, will require larger doses; on those who suffer from this complaint, the

(1) Dr. Callat, then medical inspector of the waters of Contrexéville, published in 1866, on the accidents caused by the *inconsiderate* use of these waters, a memoir which was crowned by the Academy; the 28 examples which he quotes show 13 cases of retention of urine and 4 cases of suppression of the menses.

mineral water acts not only chemically, but mechanically. This fact is proved every day at the spring by the numerous calculous concretions expelled at each morning visit, though the greater part of them remains unnoticed.

On the contrary, in cases of phosphatic gravel, the calculous concretions "boil away" to use the graphic expression of one of our patients. The dose varies, in this case, according to the degree of irritation of the kidneys and of the bladder. In most vesical affections the quantity of water absorbed should be moderate. When the liver is affected, the medical adviser must take into account the state of the stomach, the sluggishness of the intestines, etc.

It therefore becomes impossible, it will be seen, to determine beforehand the dose to be prescribed to the water-drinker of Contrexéville. This dose, moreover, will vary for the same affection, according to the age, the sex and the constitution of the patient.

It is evident that a strong gouty person, who moves about freely, cannot be treated

like one of those infirm invalids who try for the first time the efficacity of the spring of the Pavilion. The treatment cannot be the same for a man of thirty and for a man of seventy who labour under the same complaint; it must also vary, in the case of females, according to their age.

The daily quantity of water prescribed is often taken fasting (a glass full or half a glass at a time, with an interval of ten, fifteen, twenty or thirty minutes between each, according to the case) during the morning visit to the spring. A second visit, between three and five o'clock, is sometimes ordered. Lastly, in a few exceptional cases, it is necessary to dilute the water with different ingredients.

The exercise which the patient takes between each glass facilitates the digestion of the mineral water. Moreover this water is so *friendly to the stomach* — to borrow the words of Mr. Patissier, member of the *Académie de médecine* — that during my sixteen years of practice at Contrexéville, I have only once been obliged to advise a patient to leave off *drinking* it.

One word more concerning the doses of mineral water absorbed, for the information of those patients and doctors who believe that twenty or thirty glasses of water are still taken at Contrexéville, as was the case a hundred or even fifty years ago.

At Vichy also people used formerly to drink doses of thirty glasses, and M^me^ de Sévigné tells us that on her arrival at Vichy she was bled, purged, and that she began the first day of her cure by swallowing twelve glasses of water from the spring of the *Grande Grille!*

The highest dose at Vichy is now generally six glasses, and at Contrexéville patients who, at the summum of their treatment, reach twelve glasses are far from numerous. Of course I do not speak of exceptions, for if on one occasion I have been able to cure a patient suffering from cystitis with four half glasses a day, I have also, *on one occasion only*, been obliged to increase to twenty eight glasses the dose of a female patient afflicted with phosphatic diabetes accompanied by polydipsia, in order to obtain a satisfactory result which had not been attain-

ed by smaller doses taken the preceding year.

Since we have mentioned M^me^ de Sévigné and the medical customs of her time, let us add that if we judge it useless, in this anœmic generation, to imitate our fathers as far as bleeding is concerned, we think that in many cases a purgative ought to be taken before beginning the hydro-mineral treatment, especially by those patients who, coming from a large city where they generally lead a busy life, have tired themselves more than usual before starting on their journey.

2° *External use.* — The external application of the Contrexéville waters renders every day the most notable services; through the influence of the doctors who witness its good effects and of the patients who are benefitted by it, it tends to become more and more common.

The means of applying it, sufficiently varied, are *baths, douches, injections* and *lotions.*

The establishment contains forty-six bath-rooms, sixteen of which are reserved to

female patients; five douche-halls; three hip-bath apparatuses with running water; one for vaginal douches and two for ascending douches.

The *baths*, at Contrexéville, lend a powerful help to the internal medication, which as we have already said, is the principal therapeutical agent of this station. The question of absorption by the skin, which has given rise to so many controversies, does not allow us to estimate the quantity of mineral salts absorbed in a single bath. It is certain, however, that at a temperature of from 32 to 35 degrees centigrade, a part of the 800 or 900 *grammes* of the salts contained in the water of the bath is absorbed and adds its action to those which the water used as a drink has introduced into the system.

Hip-baths with running water, especially when the water is constantly renewed, is in many cases a useful substitute for perineal douches. Their temperature, as well as that of the baths and of the douches, must of course be calculated in accordance with the symptoms.

The douches are cold, warm or alternately warm and cold (*Scotch douches*); they are general or local, with or without introduction (*vaginal, rectal douches*).

Although general cold douches are daily employed at Contrexéville, it is the local douche, which usually precedes them, that is destined to render us most service. Sometimes, discharged in a strong stream on the loins, the shock of the liquid jet causes a commotion which determines the expulsion of the gravel; sometimes, falling in a shower on the perineum or on the abdomen, it revives the vesical contractibility already internally stimulated by the liquid absorbed, or facilitates the resolution of the obstructions of the prostate. It is still more efficacious against involuntary emissions of semen.

The *Scotch douche,* which consists in the alternate use of warm and cold water, is seldom employed at Contrexéville.

As for the *ascending douche,* we find it beneficial in certain affections of the bladder or of the uterus, in cases of obstinate consti-

pation which do not yield to the hydro-mineral treatment.

The *vaginal douche,* destined to act on the neck of the uterus or on the coat of the vagina, is very useful in cases of catarrh of the uterus.

Injections of mineral water into the bladder, either with the ordinary sound or with the double-acting sound, give excellent results. Still this treatment must be used with great circumspection. Before having recourse to it, the susceptibility of the bladder must be ascertained; otherwise the attempt might bring about a recurrence of those accidents which, for a while, threw into discredit a most rational method.

Lastly, *lotions* of the water of the *Source du Prince* have been used, especially in chronic affections of the eyes. Its properties as a remedy against ophthalmia have not been attentively studied by the doctors who have practised at Contrexéville. In this respect the spring owes its redutation to a local tradition of more than one hundred and fifty years standing and it is visited by all the

inhabitants of the country who suffer f
complaints of the eye. In cases of chr
conjunctivitis we have seen it produce g
results.

CHAPTER III.

Statistics.-- Gout.—Gravel.—Diseases of the bladder and of the prostate.—Diabetes.—Nephritic colics.

Statistics.

The following statistical table shows the different diseases against which the waters of Contrexéville are considered efficacious, and the proportion of them in each case. The list we give here represents the percentage of our patients :

Gravel (uric, oxalic, phosphatic).....	37
Gout.....	22
Vesical catarrh, cystitis, affections of prostate.....	19
Gouty diabetes.....	5
Hepatic colics.....	7
Other chronic diseases of the kidneys, of the bladder, the liver and the stomach; gouty dyspepsia.....	10
	100

Gout.

Gout is an articular manifestation of the uric diathesis, of which gravel is the renal

manifestation and of which certain diseases of the skin, that need not be mentioned here, are the cutaneous manifestation.

This definition — a somewhat absolute one, since it omits visceral gout (*Irregular gout*, by doctor Garrod), which causes accidents in the pectoral and abdominal organs, in the heart, the lungs, the stomach, &c., — deserves nevertheless to be maintained, because it explains the origin of gout and its affinity to gravel and eruptions connected with the uric diathesis. We may disregard this omission, as we shall speak lower down of visceral gout which belongs to the complaints treated at Contrexéville. As for rheumatism, which the medical advisers at mineral springs easily distinguish from gout, it is needless to mention it here; as Doctor Durand-Fardel rightly observes, it is relieved by the external application of warm springs, while gout necessitates internal medication and obtains the best results from cold springs.

The well known experiment of the learned Doctor Garrod, who was the first to point out the means of discovering uric acid in the

blood of gouty patients (1), has clearly established the close affinity of gout with the uric diathesis.

This consists, as we know, in the accumulation in the system of *uric acid* due to an incomplete oxydation of the azotic elements contained in the blood. When the uric acid is expelled by the kidneys, it gives rise to particles of red sand and calculi — to gravel, in fact.

When it accumulates in the joints in the shape of urate of soda it causes the swellings and pains which characterize gout.

Lastly, its expulsion through the skin produces a variety of cutaneous affections which are cured or relieved by the general treatment applied to the two former diseases and which, whatever name we give them, are certainly connected with the uric diathesis.

Thus acid uric is found in excess in the blood ; it accumulates in the articulations in the shape of urate of soda ; and, as Garrod

(1) Garrod, *A treatise on gout*, third edition. London : Longmans, Green and C°. 1876.

has shown, its expulsion by the kidneys decreases during the fit.

The principal causes of gout are, according to the clinical observations at Contrexéville, hereditary transmission in two fifths of the cases and over-feeding. The gouty patient eats too much and especially too much meat. It has been said, not without some show of reason, that an animal diet is the origin and a vegetable diet the remedy of this disease.

However, we must not exaggerate the share of good living in the development of gout. Protracted brain work may produce this affection in sober and laborious people. Van Swieten mentions a mathematician who could never solve a difficult problem without having a fit of gout. Sydenham tells us that the composition of his remarkable work on gout brought on the most severe attack which he had ever felt.

On the other hand certain rich idlers are not necessarily gouty, however they may indulge in good cheer; they escape, thanks to a sort of moral laziness or inertia, for the

nervous system, which plays a very important part in the growth of gout, remains latent in such sluggards.

The part played by the nervous system consists rather in provoking than in repelling a fit of gout. Nevertheless if violent emotions can, as is often seen, produce an attack of gout, they may also in a few cases arrest it. History tells us that the great Condé, whose constitution was essentially nervous, found himself almost suddenly cured of the gout when about to fight a battle The celebrated Linné, suffering from a violent attack of gout, was abruptly relieved at the sight of a quantity of botanical treasures which one of his pupils had collected in Canada. Gouty invalids have been known to recover all of sudden when a thunder-bolt fell near them or when an impending danger obliged them to seek safety in flight.

Still these facts are merely exceptions, especially the one concerning the effect produced by the fall of the thunder bolt; in general a thunder storm increases the pains of those who suffer from gout and several times

it has brought on a fit in the case of one of our patients.

Although gout is always a chronic disease, it shows itself under two such different forms that most authors admit an *acute* and a *chronic* gout, to which varieties must be added *visceral* gout.

Acute articular gout with violent and very painful fits, leaving between them intervals of perfect freedom from pain, beginning sixty-four times out of a hundred in the big toe, is the most frequent. In most cases it is hereditary, but it is often acquired and then the patient only visits Contrexéville to elude the punishment brought upon himself by a too generous diet, which he will hasten to indulge in again as soon as he has left the station.

The fits, which at first are separated by an interval of two or three years, soon reappear once a year, then twice a year, in spring and in autumn. At last, if a proper treatment and a rational hygiene are wanting, the disease becomes chronic.

Chronic gout, also called *atonic gout*, be-

cause it coincides with a general weakness of the system, follows acute gout, but it may also make its appearance at the very onset.

The paroxyms are less acute, but they are almost permanent; instead of leaving the articulation free when they have ceased, they distort it more or less, and produce those tophaceous concretions which often let out considerable quantities of chalky matter (urate of soda).

In its last period chronic gout induces a cachexy characterized by an extreme prostration of strength, by a great muscular debility and a notable weakening of the nervous system.

Visceral gout is characterized by morbid symptoms, which, under the influence of the gouty diathesis, attack the interior organs. It may precede those articular accidents which afterwards affect the patient and it is then called *irregular gout*; it may on the contrary follow these accidents, and it then takes the name of *retrocedent* or *repelled gout*.

The seat of irregular gout is especially the stomach. Thus professor Ball (*Thèse de con-*

cours pour l'agrégation) has well said : "Gout is to the stomach what rheumatism is to the heart". It is characterized by dyspectic disorders which seldom give way before the appearance of a fit after having withstood all the *usual* remedies.

Repelled gout, always dangerous, sometimes causes the death of the patient. It especially strikes those who have had too much confidence in specifics, in leeches or in cold applications. It generally attacks the stomach or the bronchia.

Among other gouty accidents not touching the articulations, we shall only mention a case of a gouty affection of the eye quoted by Garrod (1) which we have observed in a patient of Dr. Bucquoy. The hydro-mineral treatment of Contrexéville seems to have been successful in this case.

Lastly, I deem it useful to mention, as an exceptional case of gout, an accident which has never been noticed by Dr. Charcot or by other French practitioners who have spe-

(1) Reynolds, *A system of medecine,* article GOUT, *by Garrod.*

cially studied gout, and which Dr. Garrod has only observed once. Dr. Garrod's observation having been made after the last edition of his remarkable treatise on gout, has not yet been published.

One of my oldest patients, who had visited Contrexéville since 1866, suffering from all the symptoms of gout — renal colics (which thanks to the use of the Contrexéville waters, had not reappeared since 1868), a slight gouty diabetes, eczema, but especially articular gout — called me in May 1881, complaining of a very painful swelling in the region of the right parotid gland. This swelling seemed to announce the presence of an abcess, the origin of which the patient attributed to an operation performed the day before by his dentist on the corresponding side of the mouth. At the end of forty eight hours of suffering which the ordinary remedies did not relieve, I was greatly surprised to see the swelling disappear, replaced by a fit of gout in the left knee, which was followed by a similar accident in the left parotid gland and lastly by a gouty attack in the right

knee. After his recovery the patient came to Contrexéville, stating that this accident had left in his mouth a salty taste which was very marked at the beginning of each meal. I easily produced this salty flavour by pressing on the parotid glands, and I remained convinced that it was due to the saliva of those glands loaded with urates, for they had been the seat of a regular fit of *parotid gout*.

The case observed by Dr. Garrod is almost the same as a third one, equally unpublished, which was met by Doctor Rotureau, of Paris. Dr. Rotureau observed in his patient, on five different occasions, a fit beginning in one of the parotid glands, invading the knee on the opposite side, then the other parotid and ending in the knee which had not been affected. I have thought it necessary to bring these facts, which had not yet been described, to the notice of medical practitioners.

The treatment of gout. It admits the two following indications :

1° Relieve the pain.

2° Prevent a return of the fits by modifying the general condition of the patient.

In a fit of gout, the school of Sydenham, which reckons a very great number of followers, forbids as dangerous all means of relief, and confines itself to the precept of Cullen : patience and flannel.

In the beginning of my practice, says Trousseau in his *Traité de thérapeutique*, I endeavoured like many others to struggle against the disease; now I do nothing, absolutely nothing, against a fit of gout. On more than one occasion I have seen how dangerous an active treatment might be.

Notwithstanding this assertion of our learned master, we think, with Dr. Charcot, that the physician should play a more active part, for the inaction of scientific advisers gives open scope to empirics who too often only bring relief at the almost certain risk of causing serious accidents.

Still it is the duty of the medical adviser, who ought to pay more attention to his gouty patient than to the gout itself, to choose among the different remedies the one which

best suits the constitution of the invalid. He must be very cautious before he has recourse to heroic remedies which seldom bring relief without inducing serious visceral accidents.

The *external treatment*, in an attack of acute gout, offers a list of different remedies which are contradictory in their effects and may well puzzle not only the doctor, but the patient. Garrod asserts that they are useless in most cases. Still some fits are so painful that it is necessary to relieve the sufferer.

The application of laudanum, of belladona, henbane and camphorated mixtures on the diseased part, but especially a woollen padding covered with oil-skin are then the most rational means.

Bleeding, formerly popular, is now seldom resorted to; by diminishing the force of reaction, it tends to produce chronic gout. Besides it has also proved fatal; among its victims may be quoted one of the heroes of the French navy, Suffren, who died at Versailles after having been bled during an acute attack of gout.

Of an affusion of *cold water* on the affected

part it has been said that, in this method, the relief is never so certain as the danger.

The *internal treatment* of gout also offers a varied and numerous choice of remedies. We shall only quote sulphate of quinine, colchicum, salicylate of soda and *mineral waters which alone can, with a proper hygiene, modify the constitution of the gouty patient* and prevent a relapse.

Sulphate of quinine and the bark of the ash-tree, which, before the discovery of quinine, was prescribed against intermittent fevers, have an undoubted effect upon gout.

The formula given by my regretted father in his periodical publication (*Bulletin de thérapeutique*), and approved by many french practitioners who found it most efficacious, is the following one :

Sulphate of quinine	1g,50
Extract of digitalis.....	0 ,25
Extract of colchicum seeds.....	0 ,50

For ten pills.

Colchicum, to which most of our vaunted specifics owe their efficacity, has been used against gout time out of mind. It is a power-

ful and very active remedy of which professor Bouchardat says : "Colchicum may be compared to digitalis and strychnia ; it seems certain that many cases quoted as examples of retrocedent gout are to be attributed to poisoning by colchicum". The fatal effects of this medecine have caused it to be discarded by many practitioners ; it is administered according to the following rules :

Use it in very weak doses ; do not accustom the patient to it ; do not prescribe it at the beginning of a fit ; do not administer it in atonic gout.

Nevertheless there are cases where colchicum, even in small doses, cannot be borne; we every day see examples of this fact among our patients.

Salicylate of soda, a new medicine, has recently turned the head of gouty patients who were all eager to try it. The numerous accidents which it occasioned obliged us to reckon it among the dangerous remedies. Like colchicum it may suddenly cure a fit of gout ; but, like colchicum, it also caused the death *of some of* the patients who had used it. We

must add however that most gouty patients have ceased of their own accord to use it. Our personal opinion is that this medecine, very useful in acute articular rheumatism, is very dangerous in cases of gout.

We have already said that the second indication, in the treatment of gout, is to struggle against the diathesis by modifying the general condition of the patient. This result is obtained by two means which complete one another : hygiene and mineral waters.

The hygiene of a gouty patient is thus summed up by Dr. Charcot : "Exercise is to be recommended ; he must be moderate in his diet, but without exaggeration, for otherwise he might assist the development of atonic gout. All kinds of strong beer and alcoholic wines should be absolutely forbidden, but light beer, Bordeaux and Moselle may be allowed. A change of climate is often advantageous. Lastly, mental hygiene should be attended to ; efforts must be made to encourage cheerfulness, to keep the patient free from all causes of anxiety, and excessive brain-work ought to be avoided".

Such mineral waters as are used in gout belong especially to the class of alkaline waters. "Alkalines, says professor Charcot, whom we again quote, and above all lithium, administered in small well diluted doses (for the action of the water is very efficacious) have a remarkable effect on gout. They delay the paroxysms, they sometimes dissolve and reduce the deposits already formed and give more flexibility to the joints."

Now these results are exactly those produced by the waters of Contrexéville, which, as the analysis shows, contain lithium and alkaline salts in diluted doses.

This dilution is most important and helps to explain the efficacity of the Contrexéville spring in cases where strong alkaline waters, like those of Carlsbad or Vichy, have been of no avail.

The tonic and fortifying effects of the waters of the *source du Pavillon* will especially give surprising results in cases of chronic gout. At Contrexéville we have seen invalids discard the crutches which they had been obliged to use during many years.

In cases of visceral gout the results have been no less satisfactory. This is confirmed by several eminent physicians. The first, Dr. A. Millet, of Tours, who, after an attack of renal colic, came in 1862 to our station, where he recovered his health, has written a memoir (*Une saison à Contrexéville*) from which we borrow the following passage :

"Gouty patients abound in Contrexéville and are almost as numerous as those who suffer from gravel. (I mean by gouty patients those who have had one or several fits of gout). Most of those I met there were sufferers whom the waters of Vichy had not relieved in the slightest degree. Trusting in the secular fame of Contrexéville, they had sought help from its springs, and very few had not good reason to congratulate themselves on their choice.

"Is it necessary to quote examples ? The cases which I might mention are so numerous that I would scarcely know where to begin, for I have seen many patients who on their arrival were unable to move without the aid of crutches or walking sticks, so painful and

swollen were their joints, and who after spending a few days at Contrexéville and following the prescriptions of their medical adviser, could walk about like the other drinkers. I have myself sent to this station gouty patients whose strength was exhausted ; — they derived the greatest benefit from the mineral waters. I therefore have the right to express my opinion as positively and as distinctly as I do, for it is founded on serious observations, recorded with an impartiality and a sincerity which no one can doubt."

Our regretted master, the celebrated professor Trousseau, in his lectures on gout delivered at the Hôtel-Dieu in 1861, expressed himself in the following terms :

« You know to what a frenzy the use of the mineral waters of Vals, Vichy and Carlsbad, has been carried latterly. My opinion is that there does not exist in the world a more dangerous medication. For my part I have certainly seen more than five hundred gouty patients who resorted to Vichy and who came off horribly worsted. On the other hand I doubt whether my memory could remind me

of a few isolated cases of real improvement. Mr. Prunelle, who has practised at Vichy for a long time and with great success, was the first to point out the deplorable consequences of the treatment of gout by alkalines *intus et extra*. On the contrary, if you have recourse to slightly mineralised waters, like those of Contrexéville, not only you will have no accidents to fear, but in most cases you will observe a notable improvement. When gravel accompanies gout, Contrexéville will even give therapeutical results of great value."

Professor Charcot, in his remarkable lectures delivered at the hospital of La Salpêtrière (1), thus expresses his opinion : "The waters of Contrexéville are often very useful in chronic gout. We have used them several times in cases of gout of long standing and we have found the results very beneficial".

The time which has elapsed since these words were spoken has allowed the learned lecturer, who in France is an authority on questions of gout, to observe among his pa-

(1) Charcot, *Leçons sur les maladies chroniques*, p. 243. Paris, Delahaye, 1868.

tients many examples confirming this assertion.

Lastly, a more recent writer, Dr. Potton, himself a sufferer from gout and fighting, as he says, *pro domo sua*, has published (*Lyon médical*, June, July and August 1869) a series of papers on the use of mineral waters in gout, and he thus speaks of visceral gout :

"A form of internal gout against which it is necessary and rational to react is that which injures the digestive organs. It is to be met with in stout, plethoric patients, in those who indulge in good cheer or whose occupations are sedentary. Here the limbs which had been at first attacked cease to be painful ; the patient is relieved from acute ailments, but he complains of mucous and dyspectic phenomena which low diet, a scrupulous regimen, combined with all the ressources of the medicine chest, are unable to conquer.

"In these patients, whose abdominal system presents an exaggerated predominancy, the veinous circulation becomes obstructed,

difficult, and costiveness permanent. These habitual ailments increase in a fit of gout and continue when the attack has ceased. They evidently announce something more than a a bilious, saburral and hemorrhoidical condition of the body. Chronic and sluggish at first, they sometimes suddenly take another form; they abruptly affect the viscera, the kidneys, the bladder, the liver, then causing intolerable pains which rather ressemble those induced by neuralgia than those resulting from regular inflammations.

"The most judicious reforms in the patient's regimen, the wisest precautions, the most rational medical means cease to answer the doctor's expectations. The principle of the disease checks the resolution of the visceral symptoms. When the crises are ended, it is also by the use of mineral waters that I endeavour to overcome this particular morbid condition. A series of comparative observations leads me, in these organic and functional disorders, to advise, preferably to all other remedies, the *calcareous magnesian* water of Contrexéville. Diuretic and laxa-

tive, promoting digestion without fatigue, they stimulate the secretions and increase the contractile power of the stomach. In large doses they become purgative. The essential elements of their composition are lime, magnesia, and lithia which have always been considered as dissolvents, acting energetically on what ancient writers called *visceral obstructions*. Their direct action helps to deplete the abdominal system (1).

We think that these quotations are sufficient to show the *efficacity* and, at the same time the *innocuousness* of the Contrexéville waters in cases of gout. The latter fact has an enormous importance when we meditate on the folloving words of the celebrated English physician who has been called the father of gout, — Sydenham :

« It is after a long experience and numerous observations that I boldly assert that most of those who die of gout are killed not so much by the disease as by an injudicious treatment".

Fits of gout are certainly suppressed by col-

(1) *Lyon médical*, August 1869.

chicum, by the *liqueur Laville*, by salicylate of soda — only to mention the remedies most in use ; but the fits return more painful than ever and the interval between them becomes shorter and shorter unless the patient follows a strict regimen. This however is not generally the case. Gouty patients — to quote Trousseau once more — when the attack has proved abortive, laugh at gout and again fall into all kinds of excesses ; but, as there is an end to every thing, they are at last overcome, and the rapidity of this result is in proportion to the heedlessness with which they have teased an affection that they should have known how to bear.

It is not only the abuse of specifics that is fatal to gouty people. We must rank under the same head the abuse of alkalines, soda, potash and even lithium. In large doses they are deglobulyzing and occasion ravages which have called forth much energetic censure from Trousseau. It is important to observe that they can only be useful in diluted doses. Nevertheless, whatever precautious one may take, none of these iso-

lated medicines will give the results obtained with the mineral waters of Contrexéville.

In such a work as this we cannot publish observations; we shall therefore confine ourselves to a brief summary of a few examples of the results of the treatment of gout at Contrexéville.

Count de B—, a former member of the Chamber of deputies, born of a gouty father, had an attack of gout at the age of forty; then, during twenty five years, the fits, recurring once or twice every year and lasting as long as three months towards the end of that period, had invaded the feet, the knees, the wrists and the elbows. Several thermal treatments, among others at Plombières, Schinznack and Cauterets, gave no result. In 1866 an attack of visceral gout endangered the life of the patient. The following year a first visit to the spring of the Pavilion, a slight fit which does not oblige the patient to keep his bed and does not interrupt the treatment; no more attacks of gout during the next year, general state of health improved and general condition excellent; fresh visits to Con-

trexéville and disappearance of the fits until 1878, when the patient ceased to resort to the spring.

Mr. R—, first fit of acute gout in his thirty third year, a fit in both big toes every year during five years, first season at Contrexéville in 1867 ; nine other cures at the spring of the Pavilion ; in 1878 not a single fit since 1867.

Mr. R—, ten years of articular gout with dyspepsia, a fit every year, eight consecutive visits to Contrexéville, 1869-1878 ; only one fit of six days duration in eight years, although a proper regimen was not followed ; digestive functions completely restored.

Mr. L— S—, a sufferer from gout during twenty eight years, no attack from 1871 to 1878 ; hydro-mineral treatment every year since 1868.

Mr. P—, gout with serious visceral manifestations ; sent to Contrexéville in 1873 by Dr. Charcot : no fit during five years ; want of care on the patient's part brings back an attack in the winter of 1877-1878, while before the annual visits to the spring the attacks used to recur every year.

We might multiply such examples and quote among the gouty patients whom we have attended during the last sixteen years, results no less satisfactory, but we think we have already said enough to convince the reader of the value of the spring of the Pavilion in the treatment of gout.

We must add that, however satisfactory the results obtained may have been, they would be still more remarkable if we could induce all our patients to modify their regimen ; but most of them only resort to a hydro-mineral treatment in order to secure impunity against fresh excesses !

Gravel.

Gravel is a disease which determines, at the expense of the urinæ, the formation of bodies varying in shape as well as in size and the consistence of which also varies according to their composition.

It comprises three principal varieties : — *uric*, *oxalic* and *phosphatic gravel*, to which we must add *cystine*, *xanthine* and *pileous* gravel, which are all three very uncommon.

Uric gravel is by far the most frequent ; it is the kind which we generally meet with at Contrexéville.

At the beginning of the disease one observes in the urine the presence of the brownish red sand which is so well known at Contrexéville. If the patient has paid no attention to this first warning and failed to modify his regimen, these particles of sand adhere so as to form a small calculus the size of which varies from that of a grain of millet to that of the stone of a date, and the passage of which may cause those painful crises known as *renal* or *nephritic colics*.

Lastly, if the calculus, the passage of which from the kidney into the bladder has caused this colic, is not expelled, it gives rise in the bladder to the formation of a *stone*, either through the adjunction of elements of the same nature or in consequence of the irritation occasioned in the bladder and of the decomposition of urine resulting fromit.

The causes which produce uric gravel, as stated in the memoir read in 1876 by the author before the *Académie de médecine*, are

the following, which we mention in the order of their frequency :

Hereditary transmission in one third of the cases observed. This fact, unfortunately, is so clearly established that no proofs are necessary ; in 1874 I have seen, among others, the son and the grand-son of princess de B—. who herself had visited Contrexéville fifty years before, all three suffering from uric gravel. Hereditary gravel usually shows itself at the age of thirty ; nevertheless we have seen at Contrexéville fifteen children and a much greater number of young people afflicted with it; as an exceptional occurrence, we shall quote a case of gravel, with regular renal colics, in a child of less than one year of age. (See, on this case, the memoir already quoted, p. 11).

Disorders of the digestive functions next figure, in the order of frequency, among the productive causes of uric gravel ; when a patient, whose diet and habits seem to render an attack of gravel unlikely, yet suffers from this complaint, we observe, in most cases, *disorders* of the digestive functions of several

years standing; we notice that the quantity of uric acid diminishes when the digestions are good and increases when they are bad. Lastly, under the influence of the treatment adopted at Contrexéville, we see the state of the stomach improve at the same time as that of the kidneys.

Over feeding is the best known and the most acknowledged cause of the uric diathesis. The quantity and above all the quality of the food give rise to that surplus of receipts over the expenditure of the human economy which inevitably results in the production of uric acid.

Want of exercise, is, in the order of frequency, the fourth cause of the uric diathesis. It is in this class of patients that we must place the inhabitants of large cities (especially those of Paris) whose habits, tastes or profession tempt them to lead a more sedentary life than is conducive to health. No doubt these same patients are sometimes also guilty of over-feeding; but among them there are some who, chained down by their professional occupations to an office table, in vain try

to make amends by restraining their appetite and by keeping a strict regimen; the want of muscular exercise does not allow them to digest their food completely and condemns them to remain affected with gravel.

Violent mental emotions may in a few uncommon cases occasion the sudden appearance of gravel.

Lastly we have only met with a single case (in a child of thirteen years of age) which can be attributed to a fall on the loins, — a most exceptional case, which has especially been pointed out by Wilson, an writer.

Oxalic gravel is produced by oxalate of lime. This salt is white and transparent; it forms calculous concretions composed of sharp laminæ which determine the erosion of the parts brought into contact with them; the blood resulting from the erosion soon gives them a blackish colour; they then assume the mamilated appearance to which they owe their name of *mulberry calculus*, from their ressemblance to the fruit of the mulberry-tree. These calculi may grow to a *considerable size* in the bladder.

Oxalate of lime is often found combined with uric acid ; I have discovered the characteristic crystals of this salt in almost one third of the urinæ of the sufferers from uric gravel which I have submitted to a microscopical examination.

The causes which produce oxalic gravel are much the same as in the case of uric gravel, but it especially affects those who indulge too freely in sorrel, tomatas or rhubarb. It is not uncommon to see in France people, under pretext that they require a cooling diet, consume large quantities of sorrel. We must warn them of the danger which they incur by an immoderate use of this vegetable. An ambassador, addicted to the pleasures of the table, was sent on a mission to a country where the art of good living was extensively cultivated. He had given many dinners, had been invited in return to many official feasts, and had proved himself an able diplomatist as well as a first rate gastronomer. A revolution breaks out, and our ambassador falls back into private life. Remembering that he has followed a very exci-

ting regimen, he wishes to remedy the evil by a cooling diet; he therefore firmly resolves to eat, all to himself and every day, a large dish of sorrel, and he keeps his promise during more than eleven months; at the end of that time, he feels a pain in the kidneys and the ureters, and soon afterwards he voids a single calculus of oxalate of lime.

I have witnessed the same fact in the case of a young American who had indulged too freely in green tomatas. When he came to Contrexéville, I ascertained the presence in his bladder of a calculus as large as a hazel-nut of which the late Dr. Dolbeau relieved him by lithotrity in a single sitting.

French beans contain oxalate of lime in their husk and should be forbidden. This salt is also found in rhubarb, ginger, unripe fruit, water-cresses and in the claspers of the grape-vine.

Gravel determines, in the loins, pains of which the intensity varies. Sometimes scarcely felt, sometimes only producing a sensation of heaviness, they may however be increased by a walk, a drive or a ride on horse-

back. They often radiate towards the ureter and their intensity may increase in foggy weather or after a bad digestion. Lastly the presence of calculous concretions may determine some more or less painful disorders in micturition.

The migration and expulsion of the calculi are, as we have already said, more or less easy. The pains which they occasion are nowise in proportion to the matter expelled. We have seen voluminous calculi voided without pain, while others, not exceeding in size a grain of millet, have caused a renal colic.

However at Contrexéville, where a large number of calculi are expelled every morning by the patients, their passage is effected without causing the least suffering in the great majority of cases.

In only one case out of a hundred their passage occasions *during the cure* a painful crisis, and yet the calculi sometimes attain relatively considerable dimensions, if we compare them to the canal through which they are voided.

The next diagram represents calculi drawn from nature, expelled without any crisis by three different patients during their treatment at Contrexéville. We must add however that they are not the most voluminous samples which have fallen under our notice; but the owner of the larger ones refused to part with them in our favour.

Fig. 2. — Three calculi voided at Contrexéville.

A *renal* or *nephritic colic* always begins suddenly; therefore, when it occurs for the first time, it often gives rise to an erroneous diagnostic. The following are its characteristic symptoms: an excruciating, sudden pain, the seat of which is in the renal region, on one side only, and which radiates towards the abdomen; nausea, more or less frequent

attempts to vomit; retraction of the corresponding testicle.

Although continual, it is marked by exacerbations during which the patient screams, rolls about on the ground, then reaches his bed, tries to walk and utters fresh complaints. The pain is so violent that the patient finds it difficult to say where it comes from; he sometimes states that its seat is in the abdomen and thus misleads a doctor who attends him for the first time. The crises generally stop suddenly and of course leave the sufferer in a state prostration which varies according to the length of the attack. They generally only last a few hours, but we have seen many patients who suffered from them during twenty four, thirty, fifty hours, and even longer.

They usually cease as soon as the calculus falls into the bladder. Nevertheless renal colics sometimes occur without causing the expulsion of a calculus and the same concretion may occasion several colics. It is true however that it may often be voided without the knowledge of the patient, especially if

the nature of the colic has not been recognized.

In most cases the expulsion of the calculus occurs from six to twenty four hours after the crisis; but some concretions remain two or three months in the bladder before they are expelled. I have noted examples of patients who had visited Contrexéville shortly after a renal colic and whose calculus was only expelled towards the end of the treatment and even after the termination of the cure.

Certain dysuric phenomena accompany renal colics; generally micturition is suppressed; sometimes there is a frequent desire of voiding urine. The latter, always voided in a small quantity at a time, is sometimes limpid, sometimes turbid and bloody.

The rational treatment of renal colic ought to consist in determining the expulsion of the calculus; but in general this is not to be thought of, for nausea and vomiting prevent the ingestion of any liquid. We must therefore have recourse to external means in order to relieve the patient. We shall first men-

tion : poultices, sinapisms, the application of warm napkins, chloroform on a piece of wadding, which can all be easily and quickly used, pounded ice applied in a bladder on the painful part, which have given excellent results ; enemas containing laudanum, local bleedings, leeches or cupping. All these remedies generally relieve the patient, but the relief seldom lasts long.

Hydrate of chloral, either as a potion or in an enema, has produced, in certain cases, decisive results.

A means employed at present by all practitioners, but which was unknown at Contrexéville sixteen years ago, when we were the first to adopt it at that watering place, now seems likely to supersede those which we have enumerated. We mean sub-cutaneous injections of morphia, which usually succeed in mitigating the crisis. In some uncommon cases, when the patient cannot bear morphia, the physician may have recourse, as we have done with good results, to sub-cutaneous injections of chloroform.

We think it necessary to advise practi-

tioners who may judge fit to inject chlo
form to make sure that it is perfectly pure
chloroform of an inferior quality might g
rise to local accidents.

When, by one of the means mention
above, the medical attendant has succeed
in soothing a renal colic, his task is
ended; he must prevent a return of the co
plaint. We shall here point out the best w
of attaining this end, or rather we shall qu
Dr. Durand-Fardel, inspector of the springs
Hauterive, at Vichy, whose works on mine
waters and on chronic diseases give him
deserved authority in such questions.

" In cases of renal pains, when the re
pearance of nephritic colics is to be feared,
in less simple cases where continual pains
turbid urinæ reveal a certain degree
inflammation or of catarrh in the region
the kidneys, the waters of Contrexéville
imported if necessary, but especially to
taken on the spot — are clearly indicat
Bicarbonated and strongly mineral wate
those of Vichy in particular, are on the co
trary to be avoided in such cases. We m

insist upon this point, which is not sufficiently known to the majority of medical practitioners (1). "

As regards the treatment of oxalic gravel, the examples which we notice every day at Contrexéville decidedly confirm the opinion of Dr. Bouchardat who, in his memoir of 1867, says: " I have always, in the treatment of oxalic gravel, preferred *calcareous alkaline* waters to *sodic alkaline* waters. I possess several observations which prove the unquestionable utility of the springs of Contrexéville. "

Phosphatic gravel is primitive or secondary.

Primitive, it has its seat in the kidneys and gives rise to white calculous concretions, the passage of which determines renal colics.

Secondary, it has its seat in the bladder when the urine has become alkaline, either on account of the abuse of energetic alkalines or because the patient has followed an exclusively vegetable diet.

(1) Durand-Fardel, *Traité pratique des maladies chroniques;* Paris, 1878. Vol. I, p. 145.

The calculi resulting from it are more friable than the preceding ones, but they are always produced with the greatest facility.

In this kind of gravel, the urine is always less acid than in its normal state; it is strongly alkaline in secondary phosphatic gravel.

White gravel is met with in debilitated patients; it necessitates an alimentary regimen diametrically opposed to the diet required in cases of red gravel; it is therefore very essential to ascertain the nature of the gravel before adopting a regimen which, wrongly applied, would greatly aggravate the disease.

I have been the first, in the memoir already quoted, to point out the existence of phosphatic *renal gravel* which until then all medical writers had connected with the vesical accidents of secondary phosphatic gravel. The facts which especially called my attention to this point are those which I was enabled to observe in sailors returning from Cochin-China and from Senegal and who had been greatly debilitated by a sojourn in a warm climate.

Without entering into details which would

be misplaced in this book and which besides have found place in my work on the causes of gravel, I shall merely state that if it has been rightly said that in uric gravel the receipts exceed the expenditure, one may no less truly assert that those sailors, who had been exposed to climates which are fatal to Europeans, *spent more than they received.*

Since the above mentioned work appeared, several doctors and professors belonging to the French navy or attached to our naval medical schools have confirmed me in my views and promised to enable me to complete this study, which the absence of a military hospital at Contrexéville renders extremely difficult.

The phosphatic concretions formed in the kidneys of debilitated patients who, owing to a real denutrition, burn their organic substance and allow the mineral matters to settle down in their system, give rise, like uric and oxalic gravel, to renal colics. As these colics differ somewhat according to the nature of the gravel, I think it necessary to state what experience has taught me in this respect.

The blood which shows itself in the urinæ before or during the crisis, is seldom seen in cases of uric gravel and, on the contrary, is always apparent when an oxalic concretion is expelled; the symptoms which determine the passage of these two concretions are moreover the same and correspond to the tabular statement which we have given.

It is otherwise in the case of phosphatic gravel; then there is no hematuria, the crises are less acute, but they also last much longer.

I have seen crises of this nature last eight days before the calculus was expelled. The pain is more clearly localized in the kidney, while in cases of uric and oxalic gravel, the patient is sometimes unable to point out the part where he suffers most; on the contrary, the pain is often thought to have its seat in the flank, thus causing many diagnostic mistakes which it is never easy to avoid.

Secondary phosphatic gravel is produced:

1° When a fermentation of the urine occurs before the liquid is voided.

2° When the urine has become alkaline,

owing to an abuse of energetic alkalines or to an exclusively vegetable diet.

The ammoniacal fermentation of the urine is occasioned by the development of the ferment described by Mr. Pasteur and carried into the system either through the windpipe or through the circulatory organs, sometimes also through an instrument introduced into the bladder.

The causes which produce this transformation in the urine are the following, and the deposit of phosphates takes place, whatever may be the origin of the alkalinity, says Mr. Bouchardat, whose words we quote:

" *Ingesta.* — The use and above all the abuse of alkalines, bicarbonates of soda, of potash, of salts of soda and of potash the acid of which is organic; of alkaline waters (Vichy, Carlsbad) favour the deposit of phosphates in the bladder. A diet of which fruit, herbs, potatoes, strawberries form a great part produce the same effect by making the urine alkaline.

" *Incompletely voided bladder.* — These *ingesta* do not produce the same effects on dis-

ferent patients, because in some the bladder is healthy and empties itself completely, while in others this same bladder, paralyzed or inflamed, has lost its contractile power and cannot empty itself completely by the sole action of the abdominal muscles.

" It is for this reason that these calculi are frequently met with in old men whose urinary organs are diseased and in whose case the emission of urine may be impeded by several causes, such as paralysis, chronic inflammations, strictures of the urethra, hypertrophies of the prostate. "

The therapeutical indication in the treatment of white gravel is therefore to restore its acidity and its limpidity to the urine and to strengthen at the same time the general tone of the patient, who is always more or less debilitated.

Without insisting on the well known tonic and fortifying effect which always results from the use of the Contrexéville waters, we shall especially call attention to this fact which, at first, seems unaccountable : *the alkaline waters of the source du Pavillon bring*

back to their normal state alkaline urinæ. The explanation however is very simple : it is by suppressing the local inflammation (in the great majority of cases, the only cause of alkalinity) that the hydro-mineral treatment brings back the liquid to its normal conditions, which are, as we know, acidity.

No kind of treatment, either by mineral acids or by balsamics, will give results comparable to those obtained at Contrexéville.

Here is moreover the opinion expressed in 1857 by Dr. Leroy d'Etioles the younger, who at that time was practising at Vichy.

"Calcareous carbonated waters, such as those of Contrexéville, are more advisable in cases of phosphatic gravel. Indeed, in this affection, the urine is ammoniacal, irritant, and acts as a caustic on the mucous membrane of the bladder, the inflammation of which, supplying the muco-pus, becomes in its turn a cause of alkalinity and of catarrh, a regular pathological circle out of which we cannot escape unless we first change the nature of the urine. Well, here we have a remarkable and well established fact, but which as yet

has not been accounted for. The waters of Contrexéville, which contain carbonates of lime and of magnesia, mixed with soluble silica and free oxygen, bring back the urine to its normal acidity better than do all the mineral lemonades that people drink in such large quantities without producing any effect (1).

Lastly, Dr. Caudmont, the eminent specialist whose recent loss the French scientific world deplores, thus expressed his opinion in a lecture delivered at the *Ecole pratique* of Paris:

"The waters of Contrexéville deserve the reputation which they enjoy as regards the treatment of diseases of the urinary ducts. It is evident that in a certain number of these affections they give results which some patients and even some doctors declare wonderful, but which I shall merely call *remarkable*, in order to save them from an exaggeration which would surely be prejudicial to their fame among the members of the medical profession. In cases of gravel they have a special action which has been clearly proved

(1) *Études sur la gravelle*. Paris, 1857, p. 73.

and which is the same in all kinds of gravel, whether caused by uric acid, oxalate of lime or phosphates. In cases of uric gravel, they modify either the general condition of the patient or the vitality of the liver, so that the uric diathesis ceases to exercise its influence on the composition of the urine, or at least no longer exercises it with the same energy. The sufferers from gravel who have been treated at Contrexéville always feel, after their visit, a great improvement in the frequency of the crises of renal colic; they sometimes even find, on their return, that they have got rid of them for ever."

Scarce Gravels.

Pileous gravel. — It is characterized by the presence of hair in the urinæ. In the three cases which we have observed, the patients voided at the same time uric acid; it is therefore the treatment of gravel that must be followed, without paying attention to the hairs, the existence of which, though pointed out for the first time by Hippocrates himself, has not been satisfactorily explained.

Xanthine gravel. — It ressembles uric gravel; we have not met with a single example of it.

Cystine gravel. — Also seldom met with, it gives rise to yellowish calculi which, while they are burning, emit an alliaceous smell; in the two cases observed by us at Contrexéville, uric sand was found together with cystine calculi. The origin of this latter substance, eminently rich in sulphur, is not known.

These three varieties of gravel therefore necessitate the treatment and the regimen applied in cases of uric gravel.

Carbonate of lime gravel, on the contrary, rather ressembles phosphatic gravel with which it is found connected. It is very uncommon; its origin is most probably the same as that of phosphatic gravel and it should be treated in the same way.

The extent of this guide does not allow us to enter into a detailed account of our observations; the results obtained at Contrexéville are so well known and so decisive, when the patient consents to follow the hygiene

prescribed in his case, that we think it useless to insist.

Even in certain cases where the patient has not been able to modify his hygiene, a yearly visit to the spring has been sufficient to prevent a relapse, as the following example proves :

Mr. X—, age 52, residing in Paris, occupies a high position in one of our public administrations. Fifteen years of office-work have brought on in this patient, whose constitution in other respects is strong, an attack ot gravel. After a first renal crisis which occurred in 1865, his medical adviser, Dr. Denis, sent him the same year to spend a season at Vichy ; the following winter, a second renal colic, exceptionally violent, for it lasted fifty two consecutive hours, and before it ended the sufferer's hair turned suddenly white. A fresh visit to Vichy in 1866, which he bore with difficulty and which left him so debilitated that when the same year his doctor, in order to restore the patient's strength and also to prevent a return of the renal colics, thought it necessary to send him to Contrexé-

ville, he arrived there leaning on two walking sticks. The treatment at the *source du Pavillon* completely answered those two indications, for Mr. X— was soon able to take long walks. He came back every year to our station, and notwithstanding his sedentary occupations which continued to keep him at work from ten to five o'clock, he has had no fresh crisis since 1866 that is to say for sixteen consecutive years, although he has ceased since 1874 to visit our spring.

Stone.

Many patients come to Contrexéville in order to prevent a return of this painful disease; others who are afflicted with stone without being aware of it, are warned by the action of the mineral water, which by enlightening them allows them to have an operation performed before the irritation caused by a protracted presence of the stone has rendered the success of such an attempt doubtful.

It will be useful, we think, to both these

classes of patients, to know how the stone is formed and how it is to be prevented.

When a calculus formed in the kidneys falls into the bladder, the pains caused by its migration through the ureter are immediately relieved. Its fall in the bladder is sometimes felt by the patient; but in general it is the remission of the renal pains that indicates the arrival of the stone in the urinary reservoir.

Then either one or the other of the following results occur :

1° The stone is expelled through the urethra;

2° It develops itself in the bladder and renders an operation necessary.

This expulsion of the calculous concretion is usually effected without difficulty, and the patient is often only made aware of the fact by the noise produced by the calculus when it falls into his chamber-utensil. I am certain that I understate the truth when I say that two hundred calculi are expelled every year at Contrexéville by the patients, who in general do not even pick them up. Their dimension, more or less considerable, some-

times attains the size of a bean or of a date-stone in a male patient; large stones can be expelled by female patients without any operation. Indeed it is to a fact of this nature that the spring of the Pavilion owes its reputation.

If on the contrary, owing to one cause or another, the patient retains the sabulous particles in his bladder, they become the nucleus of a stone which will develop itself by either of the following mechanisms :

1° *By the adhesion to the primitive concretion of elements of the same nature ;*

2° *By the deposit round a concretion of other salts contained in the urine, and especially of alkaline phosphates.*

It is not necessary to enter into long explanations in order to make the reader understand by what mechanism a gravelly concretion lying in the bladder can grow larger through the adjunction of elements of the same nature.

In uric gravel, for instance, the sabulous matter, instead of being carried off by the urine, settles on the surface of the concre-

tion, to which it adheres slightly at first, becoming afterwards more or less hard.

At this period of the disease the waters of Contrexéville, by disaggregating the newly formed layers, may still be useful, and if the calculus is not large, will allow it to be expelled through the natural ducts.

The formation of a stone, round a calculous concretion coming from the kidneys, by the adjunction of phosphatic layers will occur:

a. When a catarrhal inflammation of the bladder is accompanied by an ammoniacal fermentation of the urine which precipitates the normal phosphates;

b. When the abuse of energetic alkalines (bicarbonates of soda, carbonate of lithium, the waters of Vichy, Vals and Carlsbad) by making the urine alkaline, allows the phosphates to precipitate and to agglomerate round the preexistent nucleus.

In the first case, most frequently met with in old patients who cannot void their bladder completely, the urine, having become alkaline through fermentation, deposits the phosphates which it contains in its normal state

and which are dissolved in all acid urinæ, so that these solid elements cluster round the calculous concretion by the following mechanism :

"A calculus almost always has its origin in a particle of uric acid. Once fallen into the bladder, this foreign sediment becomes a centre of attraction for the solid elements which are found dissolved in the urine; the less soluble part of these elements settles by degrees on the surface and enlarges it by the successive superposition of new layers". (Louis Figuier. *Thèse de concours pour l'agrégation en médecine.*)

It is moreover by the same mechanism that the use of energetic alkalines, when a calculous concretion exists in the bladder, give rise to a stone by precipitating the phosphates. Here is what Professor Bouchardat says on this subject :

" Earthy phosphates settle in alkaline urinæ, whatever may the cause of that alkalinity. The use and especially the abuse of alkalines, bicarbonates of soda, of potash, *salts* of potash or of soda, the acid of which

is organic, of alkaline waters (example : those of Vichy, of Vals, of Carlsbad), favour the deposit of phosphates in the bladder. "

"The treatment of gravel by alkalines should be well watched; the reaction of the urinæ must be often ascertained in order not to substitute phosphatic gravel to uric gravel", says Dr. Jaccoud. (*Pathologie interne,* vol. II, p. 356.)

Lastly Dr. Leroy d'Etioles, in his *Traité pratique de la gravelle* (p. 536), after having spoken of four patients on whom he had performed surgical operations at Vichy, where they had gone in the hope that the alkaline treatment would dissolve the calculi, adds :

" The examination of the calculous fragments voided by these different patients has allowed me to verify a fact already pointed out by my father and to which I have alluded in speaking of the influence of the regimen and of the treatment on the nature of the concretions. Some layers of these calculi were paler than others; that of Borda (one of the patients who had undergone operations

after having spent four seasons at Vichy) had some which were entirely white; they were layers formed on the surface of the calculus during the alkaline treatment. When the patient gives up the alkaline treatment and resumes his former mode of life, the calculus continues to increase in size, but the newly formed layers are then of the same nature as the primitive nucleus. A new alkaline treatment gives rise to a new white layer, and so on."

And he adds lower down: "None of the patients whom I have mentioned were afflicted with vesical catarrh."

In these examples no doubt is therefore possible as to the part played by the water of Vichy in the development of calculi.

Let us now pass on to the examination of a fact which comes within our personal observation.

Mr. Peyronnet, an apothecary residing at Saint-Symphorien (Loire), is sent to me from Lyons by Dr. Ollier on the 6th of July 1875. This patient, a man of forty-seven endowed with a strong constitution, has been afflicted

during the last twenty years with a flatulent dyspepsia complicated, in 1870, by intestinal accidents. He began by voiding without pain the following year concretions formed of uric acid and he made use of the waters of Vals in order to obviate the appearance of this diathesis. In 1873, the patient, subject to hœmaturias after the shortest walk, had himself explored and the presence of a calculus the diameter of which measured eleven millimètres was ascertained; unfortunately the irritability of the bladder did not allow him to undergo an operation, and the patient went to Vichy in the hope of soothing his pains and of submitting to an operation on his return.

Notwithstanding a very prudent and moderate treatment which consisted in a few baths and very little drink, the vesical irritation increased, and Mr. Perronet had to stop the treatment and to delay the operation.

The patient, being a chemist and conversant with medical theories, adopted the following mode of reasoning:

"Since I cannot undergo an operation, I

must act so as to prevent my stone from becoming larger; since I continue to produce uric acid, I must neutralize this excess of uric acid by using alkalines." And he at once began to absorb simultaneously carbonate of lithium and Vichy water (*source des Célestins*) or Vals water (*source Vivaraise*, n° 7).

In July 1874 a fresh exploration made by Mr. Ollier showed that the stone had a diameter of 35 millimètres. The patient was relieved after fourteen lithotritic sittings, of a stone *the nucleus of which was composed of uric acid, while the peripheric layers were formed of alkaline phosphates.* The results of the operation proved most successful, and the urinæ, examined on the arrival of the patient at Contrexéville, only contained a few crystals of uric acid and of oxalate of lime, together with some urate of soda.

It would be difficult to find a more striking example of the effects of alkalines on a nucleus of uric acid; the two mensurations of the calculi, before and after the operation, give the exact measure of the increase which *that* treatment had effected in the size of the

concretion. Let us add that the patient, since his first cure at Contrexéville, which he renewed the following year, enjoys excellent health.

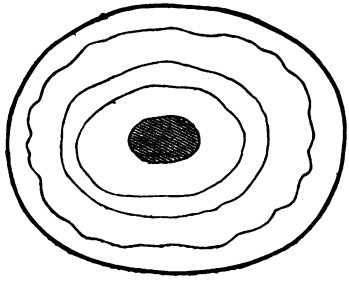

Fig. 2. — Schematic diagram representing the stone of Napoleon III.

For another example, which we do not owe to our practice at Contrexéville, we have to thank Sir Henry Thompson. We mean the stone of Emperor Napoleon III, of which the well known surgeon showed us some fragments shortly after the operation. These fragments represented about one half of a concretion the size of which had exceeded that of a large nut and which had very nearly had

the shape given in the above diagram. (*Fig.* 2.)

The operation, as we know, could not be concluded, and lithotrity had only done half its work when the patient died. The centre of this stone was formed of uric acid and urates, while the peripheric layers were composed of phosphates.

Sir Henry is of opinion that alkalines, those of Vichy especially, have caused the formation of those peripheric layers, increased in the last period by an irritation of the bladder. Those which correspond to the period of the war and to the fatigue which exercise on horse-back could not fail to produce in such a case, were, as the operator showed us, irregular and rugose; on the contrary, the last layers, which corresponded to the period of repose at Wilhemshœhe and Chislehurst, were smooth and regularly stratified.

This celebrated stone thus also corroborates this assertion : *the use of energetic alkalines* will give rise to the formation of a stone if there exists in the bladder a small

uric concretion, the latter being a centre of attraction for the phosphates of the urine which are precipitated when the urine is alkaline. At Contrexéville, on the contrary, the uric gravel will be expelled if it is capable of passing through the natural ducts, or its presence will be revealed at once, as all special writers indeed admit.

" The waters of Contrexéville, says Dr. Mallez, whose practice in diseases of the bladder and operations is one of the most important in Paris, exert a treble action : a chemical action on the mass of the blood, as is proved by their effects in gout and in the uric diathesis ; a dynamic or expulsive action on the kidneys, ridding them, with wonderful rapidity and power, of the lithic concretions, sand, gravel, or calculi, which are formed and stop in that organ. Their efficacity in cases of gravel, accompanied or not by renal colics, is attested by thousands of facts. Lastly, they have a truly special action on the contractibility and irritability of the bladder. The presence of the smallest calculus, of the smallest foreign body in the bladder is reveal-

ed after a few days of hydro-mineral tr
ment; a calculous affection may be presu
almost with certainty when the water
Contrexéville increase or determine ve
pains.

" We might quote numerous example
our personal practice, all of which are r
convincing. "

The late Dr. Philipps, another anthorit
matters concerning vesical calculi, expre
himself thus :

" The waters of Contrexéville also l
the great advantage of showing the pres
of small fragments of stone which the sur
instruments had not been able to find
the lithotritic operation; the waters, by
moting the contractions of the blad
restore to that organ a power which had l
diminished or lost, and by these contract
carry these unknown fragments over
very neck of the bladder. "

We think it useless to multiply these
tations; it is now a well established fact
Contrexéville is the *criterion* of the ston
*doubt*ful cases. Stones of which the pres

remains unknown are more numerous than is generally thought, and not only in cases where a small calculus exists in the bladder. This organ, in certain patients, is so tolerant that many calculi may have been formed without calling their attention. Not more than five years ago, in 1878, a patient came to Contrexéville without having felt any symptoms of stone, which the waters alone soon revealed, and yet his bladder contained 24 calculi of which Dr. Mallez relieved him by lithotomy. I may add that Mr. de B — now enjoys perfect health.

In presence of these results, one cannot help thinking of what would have happened if the Emperor, as had been proposed, had visited Contrexéville in 1866. He might then have got rid of the small concretion, the nucleus of a stone destined to disturb the last years of his life. This stone, operated upon too late by a process which its size and the irritation it had produced rendered unadvisable, caused his death!

One of the reasons which prevented the Emperor from coming to Contrexéville was

the mistake of his physician in ordinary the late Dr. Arnal. This distinguished practitioner was himself afflicted with uric gravel and now and then voided sabulous matter and small calculi. When he visited Contrexéville in 1868, he favoured me with the following strange communication: "Your Contrexéville waters irritate my bladder without relieving me; besides, for the two last years I have taken *huile de Harlem* and since I have voided no uric sand — absolutely none."

I had not to wait long for the explanation of the irritation caused by the water of our spring on my colleague, whom I had been unable to convince of the properties of our mineral source. The following winter Dr. Cusco relieved him by a lithotritic operation of a vesical calculus.

Calculous affections have caused great suffering to many illustrious men and often occasioned their death:

Gravel embittered the last days of Michael Angelo (1564). Calvin was afflicted with excruciating renal pains (1564). Montaigne,

sufferer from gravel, had a hard time of it (1597). Colbert, the famous minister, had three large calculi lodged in one of the ureters and he fell a victim to the disease (1683). Pope Innocent XI had "a stone weighing nine ounces in the left kidney and another weighing six ounces on the right side (1691)". Bossuet died of stone in 1704. Leibnitz was carried off in 1716 "in the middle of a nephritic colic". Louvois died of stone in 1718. Comte de Toulouse, son of Louis XIV, died in 1737 of a calculous affection of the bladder. D'Alembert died of stone in 1738. Buffon had fifty-five calculi in his bladder (1788). Benjamin Franklin died of stone in 1790. When the body of Napoleon I was opened, small calculi were found in the bladder (1821). The poet Désaugiers sang while Baron Heurteloup was operating him for stone (1827). Georges IV had in the bladder a calculus of the size of a filbert (1837). We might multiply these examples.

Conclusions. When the existence of gravel can be suspected in the kidneys or in the bladder, *the only method to be adopted is to*

endeavour to determine its expulsion through the natural ducts.

No treatment has given results comparable to those obtained at Contrexéville, the waters of which will expell the calculous excretions, however numerous they may be. We only need quote three facts among a thousand as a proof of this last assertion.

"At Contrexéville, says Mr. Leroy d'Etioles the younger, Dr. Bouchardat observed last year (in 1856) a patient placed under the care of the physician of that watering place, who, in the third week of his treatment, filled several boxes with calculi of uric acid as large as small peas, the number of which exceeded 150."

Mr. Baud has recorded the following observation :

Mr. M— (of Chartres), age 60, middle height, sanguine temperament, very active and gay disposition, had, at long intervals and for many years, suffered from very painful renal crises, followed by the expulsion of one or two uric calculi of a small size. A few bottles of the Contrexéville waters, which he drank

at home, having greatly refreshed his loins — to use his own expression — he went, in 1856, to drink this water at the spring. During the twenty one first days of his treatment he voided without the slightest pain, without the least difficulty, 700 uric calculi, the size of which varied from that of a pin's head to that of a grain of hemp-seed."

Lastly, one of our female patients voided during her cure such a quantity of phosphates that she completely filled a box which had contained fifty cigars. As for uric gravels we have also collected considerable quantities from certain patients, but without attempting to count them, for the occurrence is too frequent at Contrexéville, where a part of them always escapes observation.

We cannot end this chapter without saying a few words on a curious phenomenon, not yet explained — *the spontaneous fragmentation of stones in the bladder,* of which we have observed several examples at Contrexéville. Indeed it is not facts that are missing; what is wanted is an explanation of these singular

phenomena which may be classed under two different heads :

1° Stones which break by bursting,

2° Stones which exfoliate.

A typical case, in some sort, of the first variety has been observed by Dr. Cross, who found in the bladder of a septuagenary twenty-two stones. One of these broke of its accord shortly after the extraction. The twenty-one others could be adjusted so as to give the certainty that they had belonged to three calculi similar to the first, but reduced, one into four, the second into eight, the third into nine pieces.

The fragments of the last ones were sharp and indicated a recent rupture. The others, more ancient, were covered with a light phosphatic layer. The size of each of the primitive calculi was that a pigeon's egg.

They were formed of uric acid and a little quantity of urate of lime.

An example of a fact of the same kind has been recorded in a work on the waters of Contrexéville which I published in 1869 (obs. IX) ; the pieces of the stone, the primi-

tive size of which had been that of a hazelnut, were expelled at Contrexéville, They presented in the centre a cupule which indicated the presence of a nucleus of the size of a grain of wheat and were formed of uric acid. The small size of the primitive concretion does not allow us to admit the explanation of Dr. Civiale, who considers the spontaneous fragmentation as a result of the *vesical contractions*. Leroy d'Etioles explains it by a *contraction due to the dryness of the centre*, which, in these stones, always formed of dense and close-grained uric acid, ceases to be imbibed by the urine. Cracks would then be formed which would grow longer according as the dried part became thicker. What, in our opinion, renders this explanation very probable, is the fact that certain of these stones break up shortly after having been extracted from the bladder, as has been seen in the case quoted by Dr. Cross.

On the contrary, in the following case observed at Contrexéville, there is more reason to suppose a fragmentation by exfoliation.

Mr. C —, an inhabitant of Algeria, aged 72,

had voided during twenty years poun brick, without renal or vesical pains, wl in 1872 he had a very violent renal co which however only lasted a quarter o hour. This patient constantly made us Vichy water at his meals and found no m sand in his urinæ. Towards the end of 1

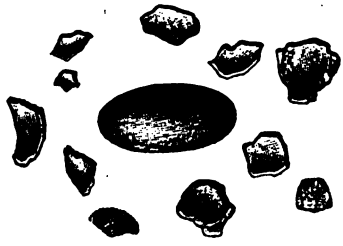

Fig. 3. — Stone which broke spontaneously and of whi the nucleus was expelled at Contrexéville.

he began to void through the urethra fr ments which cannot be better descril than by comparing them to bits of egg-sh The expulsion of these fragments, strang enough, was always preceded by renal pai Such was the condition of the patient wh at the end of June 1874, he visited Vic

where he placed himself under the care of Dr. Durand-Fardel, who prescribed the waters with all the care which Mr. C—'s state rendered necessary. During three weeks the patient drank four half glasses in two sittings at the *source de l'Hôpital, de la Grande-Grille* and *des Célestins*. After three weeks of this treatment, the physician, judging from the results which he observed every day, that the patient had in his bladder a concretion more voluminous than those he had yet voided, sent him to Contrexéville. A treatment, which also began by very moderate doses on the 21st. of July 1874, allowed us — no later than the 1st. of August — to affirm the existence of a foreign body in the bladder, and on the 15th. of August, the patient voided a large gravel or a nucleus represented in the above figure in the middle of some of the last fragments expelled. The first fragments, we have already said, were no thicker than an egg-shell.

I have only had some of these fragments reproduced by the engraver; the last are thicker than the first. The number of them is consi-

derable, for Mr. C—, who gave me about one hundred of them, asserted that he voided at least as many more without collecting them.

Did these fragments form a stone round the expelled concretion ?

What is the mechanism which caused it to break, or rather to exfoliate ?

The reader will understand how difficult it is to give a precise answer to these questions. I shall not even venture an hypothetical conjecture — the present state of science does not allow me to do so — on the mode of separation of the different elements which I believe to have belonged to a simple concretion formed round the gravel fallen from the kidney in 1872.

However, be that as it may, this termination of the gravel or rather of the stone, is exceptionally lucky; though too uncommon unfortunately, it may some day, when it is better known, give rise to therapeutical applications and thus tend to relieve sufferers afflicted with the affection of which we have retraced the history.

It is therefore important to prevent the

production of gravel and, when gravel exists, to prevent the formation of a stone in the bladder. In the latter case the spring of the *Pavillon* will produce the desired result by determining the expulsion of the calculi or by revealing their presence if they are too large to be voided by the natural ducts. But it is in a hygiene suited to the nature of the gravel that we must seek the means of preventing its return. If patients suffering from gravel will not or cannot follow exactly the prescribed regimen, no medecine can cure them and they will merely increase the crowd of those frequenters of Contrexéville who visit the station every year to avoid the punishment which the neglect of the prescribed regimen must draw upon them.

Vesical catarrh.

Vesical catarrh or chronic cystitis is preeminently the disease of old men, unless it follows an acute cystitis, which has often been the result of a chill. The causes which produce it are : 1° the stagnation of the

urinæ brought on by hypertrophy of the prostate, strictures of the urethra, atony of the bladder; 2° a foreign body, calculus coming from the kidneys, stone formed in the bladder, foreign body accidentally introduced (the fragment of a probe, for instance).

The symptoms consist in a pain and a heaviness on a level with the bladder, a frequent desire of making water, accompanied by pains before and during micturition, the liquid being voided in a feeble jet and generally in small quantity.

The number of the different treatments which have been brought forward to cure this affection unluckily proves their inefficaceousness, and not a single patient visits Contrexéville without having at least tried linseed, tar, turpentine, &c. As for the results which they may expect from our station, before quoting a few examples, we shall give the opinion of authors who are competent on this subject :

Dr. A. Rotureau, in his excellent work on the mineral waters of France, expresses himself thus : "In cases of vesical catarrh it very

seldom happens that the waters of Contrexéville do not succeed in effecting a complete cure. It is probable that the numerous patients relieved at these springs of an affection which is always so tenacious have helped to establish the unquestionable reputation of these waters."

"The effect of the mineral waters of Contrexéville, says Dr. Civiale, consists especially in restoring the vesical contractility, which is always weakened in this disease, and in this respect its use may be beneficial. Many of my patients, affected at the same time with atony and with a bad catarrh, and whom I had advised to try the waters of Contrexéville obtained such good results from them, that they returned there of their own accord (1).

Dr. Baud thus sums up what a long practice at Contrexéville has taught him : "Essential vesical catarrh is improved and cured at the springs of Contrexéville better than by any other means ; I have witnessed results so little hoped for in this order of facts that I cannot

(1) *Traité pratique des maladies des organes génito-urinaires*, vol. III, p. 525.

now state precisely how far the efficacity of this heroic medication extends and where it stops."

We shall end these quotations by the following passage borrowed from the work of Dr. Legrand du Saulle, *Huit années de pratique médicale à Contrexéville :*

"There does not perhaps exist a disease against which such a number of medications have been directed as against vesical catarrh; the therapeutical arsenal has been in vain emptied and all the pharmaceutical preparations which have been extolled one after the other produce more than doubtful results and are now abandoned."

Only one mineral spring has, on vesical catarrh, a notorious specific action which nobody denies. A physician who has had occasion to study on the spot and his own account the water of the *source du Pavillon*, Dr. J.-B. Coïon (of Suippe), passes the following judgment: "After the waters have been taken during a few days, especially when the stools are abundant, the urinæ, which were turbid, thick, ropy, become clear; their mu-

cous deposit diminishes, they emit a less disagreeable smell; the frequent desire to make water, which used to awake the patients seven or eight times during the night, only disturbs their sleep once or twice; the feeling of heaviness in the abdomen passes off; micturition becomes easier, and the patients are delighted to see with what force they expel their urinæ. This improvement goes on increasing day by day and ends by a definitive cure after a season or two."

Our personal experience confirms in every respect the above quotations. How often have we seen unfortunate patients, in the worst stage of this disease, obtain surprising results!

One fact, among others, deserves to be mentioned without entering into details too technical for a work like this. In 1877 a journeyman cutler, from the Haute-Marne, comes to Contrexéville in the following condition: he is afflicted with so violent a vesical catarrh that in the day time he makes water very painfully every five minutes and at night every quarter of an hour. One ea-

sily understands the condition of this unfortunate man whose sufferings had led him to think of suicide! After three weeks of a treatment which was most carefully watched, the patient only made water once an hour in the day time, the pain having almost entirely disappeared; at night his first sleep lasted *four consecutive hours*, after which he only awoke once every two hours; a second season improved his condition still more, and since then we have not again seen this patient, whose story we have briefly told, merely in order to show the modification effected in the number of micturitions.

The progressive improvement in this respect is the phenomenon which most strikes the patients. It has also been brought into notice by Legrand du Saulle in the three following facts : —

In 1858, Mr. T—, *receveur des finances*, made water on a average twenty-seven times in twenty-four hours, when he was sent to Contrexéville by his intimate friend Dr. Trousseau. Twenty-one days after his arrival he only made water sixteen times. At my

earnest entreaty, Mr. T— came back six weeks later and began a new treatment. Nineteen days after, he made water twelve times.

In 1859, on his arrival at Contrexéville, Mr. B—, a merchant of 57 years of age, made water from 40 to 44 times a day; when he left, he only made water 15 times. On his return, in 1860, he made water 22 times; twenty-three days later he only made water 10 times.

In 1859, a workman from the country, of 32 years of age, who made water four times an hour in the day time and twice an hour during the night, which represents 80 micturitions in the 24 hours, spent a month at Contrexéville and showed from day to day the most rapid and wonderful improvement. Before going home, he consented at my request to remain two days longer under my care without following the treatment. He then voided water eleven times during the twenty-four hours. The question was settled.

As the improvement of the liquid voided shows itself, the desire to make water becomes less frequent, and at the same time

the irritation of the mucous membrane diminishes.

Chronic cystitis often shows itself in circumstances unconnected with any lesion of the urinary ducts and under the influence of numerous causes in which cold and damp hold the first place; the patients are affected with an acute cystitis, followed by a vesical catarrh, where others would have caught an acute bronchitis and a catarrh. Examples: A man of forty-two years of age in overtaken by a storm, while driving in a tilbury the cushions of which act as reservoirs for the pouring rain; when he reaches his home, he is afflicted with an acute cystitis and afterwards with a vesical catarrh; he comes to Contrexéville, where he is cured at the end of a single season.

A stage-coach guard is wet through during a very rainy night; the next day, he has an acute cystitis; six weeks later, he has a chronic cystitis. He was cured at Contrexéville.

A man of fifty-two years of age is out shooting; he is overtaken by a terrible storm, comes home wet through, suffers from a reten-

tion of urine followed by a vesical catarrh ; he visits the spring of Contrexéville and is cured.

It is evident that if a chronic cystitis is occasioned and kept up by a calculus, or by an organic stricture of the urethra, it will be necessary, before the hydro-mineral treatment, to have recourse to surgical operations in order to get rid of the stone or of the stricture. When a catarrh connected with the existence of a stone persists after the operation, the results obtained at Contrexéville are decisive.

Diseases of the prostate.

Diseases of the prostate are intimately connected with those of the bladder and especially with vesical catarrh, which in certain cases prostatic hypertrophy may alone produce.

The following question is addressed to us every day at Contrexéville by our patients : What is the prostate and what is its use?

We therefore think it useful, without entering into an anatomical description of this gland, to say a few words on its position and

on the part which it plays in the human economy.

The prostate is a gland of the shape and of the size of a chestnut, situated at the neck of the bladder which it closely embraces.

Although it already exists in man at the moment of his birth, it is not really developped before the age of puberty and often acquires in old men considerable dimensions.

Animals are provided with a similar gland connected with the genital organs; yet science has not yet succeeded in clearly determining the functions of the prostate. This gland or this heap of little glands pours the produce of its secretions into the deep part of the urethra through a variable number of small excretory ducts, of which there are generally from fourteen to sixteen. The prostate is crossed by the ejaculatory canals.

This anatomical disposition will easily enable the reader to understand how strongly diseases of the urethra and of the bladder can act on the prostate gland, and how the diseases of the latter can also affect the bladder, the urethra, or the seminal vesicles.

The immediate connection of its posterior face with the end of the big gut will explain how habitual costiveness can disturb the functions of the gland and also how hypertrophy of the prostate can be a cause of costiveness; lastly, it will explain how a voluminous mass of indurated fæces, the expulsion of which requires violent efforts, may in passing close to this organ determine in certain cases the egress through the urethra of prostatic liquid and lead a patient, who is a once alarmed, to suppose that he suffers from an involontary emission of semen. The liquid secreted by the prostate is transparent and viscous; its emission precedes and accompanies the ejaculation and its part, not yet well defined, consists in facilitating the migration of the spermatozoa in the mysterious act of fecundation. Usually it is only expelled separately through the urethra in consequence of prolonged genesiac excitations not followed by ejaculation; it then appears, at the urinary meatus, under the form of a transparent and ropy drop. The frequent repetition of such excitations are a *more ordi-*

nary cause than is supposed of diseases of prostate; at least this seems to be proved the clinique of Contrexéville which has enabled us to observe a certain number these diseases coming after a contrary exc that is to say after absolute continence. the most usual cause is a disease alre existing in the urethra or in the bladder.

We need not speak here of all the dise of the prostate, but only of those to wh the treatment of Contrexéville is applicab these are chronic prostatitis and hypertro of the prostate.

Chronic prostatitis is characterized by a l pain, with a feeling of heat and heavines the perinæum and the anus, by a more or remarkable swelling of the organ (which comes perceptible by rectal investigation) vesical tenesmus, by dysuria and often by a more or less abundant urethral charge. It may follow an acute or a suba prostatitis, or it may begin by the chr form, and in that case it usually occurs a a chronic affection of the urethra or of *bladder.*

The principal causes of acute prostatitis are: an acute inflammation of the urethra which is transmitted thanks to the continuity of the tissues; the application of irritating agents under the form of injections or of cauterizations; traumatism coming either from the interior, owing for instance to a badly directed catheter, or due to some exterior accident: a fall, a pointed or blunt instrument, the use of special excitants, such as cantharides taken internally, and lastly the exposure of the perinæum to cold or damp.

A prostatitis which begins on the first onset under a chronic form is occasioned by a chronic inflammation of the bladder or of the urethra, by calculi lodged in the bladder, by a former stricture of the urethra, by an abuse of the genital functions.

Chronic inflammation of the prostate is not a necessary cause of hypertrophy in that organ; but it may even in youth determine an increase in the size of the gland. It is then accompanied by an alteration in the general health of the patient and by a more or less marked emaciation of the body.

Speaking on this subject with reference to old men, Demarquay, a surgeon whose works are well known, thus expresses his opinion:

"The complemental organs supply the liquid ejaculated so much the more readily that the sperm is less abundant. We have here a sort of compensatory secretion which flatters the vanity of a man advanced in age, but which ruins his health by exacting an increased activity from the prostate at the very moment when it has the greatest tendency to take an anormal development. Therefore attempts to perform the act of coition and genital excitations then become very active causes of obstruction, of prostatic hypertrophy."

Hypertrophy of the prostate occurs in middle-aged patients in whom the size of this organ slowly and gradually increases and at last obstructs more or less the egress of the urinæ. It may, as we have seen, also occasion a vesical catarrh brought on by the stagnation of the urine, especially when accompanied by vesical atony.

The prostatic region possesses a very developed venal net-work; in old men these veins

are more or less varicose, so that the senile tumefaction of the prostate has been stated by Mr. Mercier to be caused in great part by the arrest of the blood in these vessels. This increase in the size of the prostate takes place without causing pain and differs in this respect from prostatitis; it only draws the attention of the patient when the gland has attained a certain development and offers more or less opposition to the egress of the urinæ. Sometimes the barrier formed by the hypertrophied prostate may cause a total retention of the urinæ,— a frequent and always serious complication of diseases of the prostate.

After this rapid summary of the question and before mentioning the results obtained in these affections by the hydro-mineral treatment of Contrexéville, we shall say a few words on the means proposed by Sir Henry Thompson, who, in his treatise on diseases of the urinary ducts, has devoted several chapters to diseases of the prostate. In cases of simple chronic prostatitis, a disease which, our author says, is frequently met with, "I know nothing more efficaceous than irritation prac-

ticed at a distance on the perinæum and c
tinued *during four, six, or eight* weeks,
one wishes to arrive at a result. This irri
tion may be produced by drawing a pe
of wet nitrate of silver on the level of the b
of the urethra, so as *to destroy the skin* to
extent of 3 centimètres in length and of 5 c
timètres in breadth. However the metho
prefer is the application on the diseased par
acetum cantharidis or epispastic liquor of
English pharmacopæia; it is necessary
keep the sore open by means of a daily tre
ment. While having recourse to this lo
remedy, means must be employed to regul
the digestions, to promote a general reacti
by means of a tonic and generous diet; ex
cise must be allowed and regulated befo
hand as soon as the patient is able to mc
without pain (1)".

This quotation will show that the mea
proposed by the well known surgeon, w
further on recommends not to denudate
skin too much and to take great care in p

(1) Thompson, *Maladies des voies urinaires.* Pa
Baillière, 1874, p. 344.

venting the blistering liquid from running towards the anus or the scrotum, are most painful and how long they must be used in order to obtain a result! Let us now examine the treatment followed at Contrexéville, which the English author is not acquainted with, and it will be easy to draw a conclusion.

Mr. M—, a former member of the chamber of deputies, has suffered during ten years from a chronic prostatitis complicated, in 1867 and in January 1870, by two crises of acute cystitis which have not yielded to the treatments advised by his doctor, who sends him in June 1870 to Contrexéville in order to improve the state of the prostate. Besides local pains and impeded micturition, the patient complains that he cannot walk without difficulty and that exercise on horseback has become impossible. He is moreover subject to costiveness and the stools determine pains in the prostate. The treatment prescribed consists in drinks and in local douches; under its influence all the symptoms successively disappear and the visitor *is cured.*

The patient served during the whole cam-

paign of 1870 as major without any fatigue, and after a lapse of 12 years, he has seen no falling off of the brilliant results obtained at the end of a single season spent at Contrexéville.

Mr. T—, a merchant of 72 years of age, has a nervous temperament and a good constitution. He has suffered during the last three years of disorders of the urinary functions which consist in a certain difficulty in voiding water when he does not at once satisfy the desire to do so, and in a sensation of scalding heat in the urethra during and after micturition; moreover, whatever care he may take, Mr. T— cannot avoid staining his linen after making water. The jet however is relatively pretty strong, the prostate voluminous and sensitive when touched. About one year before his arrival at Contrexéville, the patient, after a copious meal, was afflicted with a retention of urine which necessitated the use of a catheter.

It was in these circumstances that he introduced himself to us on the 18th. of June 1869. *We prescribed* water from the spring of the

Pavilion as a drink, cold douches lasting from five to ten minutes on the perinæum and the hypogastric region.

On the 10th. of July, Mr. T— takes leave of us and thus sums up his case : he now voids water without feeling any pain; he no longer stains his linen and makes water as easily as before his disease. His improvement lasted until 1878, when the patient was carried off by an inflammation of the chest.

If all cases of chronic diseases of the prostate obtained at Contrexéville such rapid results, the question would be settled. But although this does not always happen, the facility with which the patient can renew a treatment far less painful than that of the English surgeon would even then militate in its favour, were it necessary. In France, moreover, preference is given to internal cauterization through the urethra, either by means of Lallemand's *porte-caustique* or by the instillation of a concentrated solution of nitrate of silver according to the method adopted by Dr. Guyon at the Hôpital Necker. Nevertheless this method does not, any more than that of Sir Henry

Thompson, ensure a satisfactory result, as is shown by the following fact observed in the case of one of the first patients whom we attended at Contrexéville and whose cure is still more significative since it lasts after a lapse of fifteen years.

In this example it is to be observed — as we have since done in the case of several patients afflicted with prostatitis or cystitis — that the improvement only manifested itself after the cure, and that at the time of his departure from Contrexéville, after the first season which he spent there, the patient found the results almost insignificant.

Mr. P—, justice of the peace in the Ardennes, fifty-five years of age, whose appearance announces a debilitated constitution, comes to Contrexéville on the 30th. of May 1868.

He suffers, he tells us, from an affection of the bladder which seems to have begun five years ago and against which he has in vain tried different treatments, the last consisting in several cauterizations of the neck of the bladder, which had produced no change in his condition. His symptoms are the follow-

ing : a sensation of heaviness in the perinæum, hinderance and even pain during micturition, which is frequent; without being able to state the number of micturitions in the day-time, the patient says they amount to five or six during the night; the water is always voided with difficulty. Mr. P— in subject to an obstinate costiveness, and when he goes to stool, which he cannot do without the help of an enema, a certain quantity of prostatic liquid escapes.

He cannot sit down without the greatest difficulty and he, who ere while had been a great pedestrian, is scarcely able to walk an English mile. His state of health has produced a deep impression on this patient. An exploration of the rectum reveals to us, on a level with the prostatic region, the existence of a hard voluminous and irregular protuberance. The jet of the urine is weak, spiral, often interrupted; the water voided has relatively undergone but little alteration. We prescribe a treatment consisting especially in drinks from our spring, in cold perineal douches and hip-baths in running water. From

the very first day, Mr. P— had a natural stool every morning, but did not observe any remarkable change in the perturbations of the urinary ducts; in the morning, at the spring, he made water a little more easily than before, but at the time of his departure he still made water about four times during the night.

On the 2d. of June 1869, Mr. P— came back to Contrexéville and told us that he had remarked, one month after his cure of the preceding year, a most favorable change in his condition, which had gone on improving during six months, and here are the symptoms which he offered on his second visit to the spring of the Pavilion : The costiveness has disappeared, together with the emission of prostatic liquid which it occasioned; every morning Mr. P— has a stool without ever being obliged to have recourse to enemas; he voids water more easily, the jet is stronger, and flows more naturally, the desire of voiding it is much less frequent; however he still voids water once a night. Lastly he can *easily walk* from 8 to 10 miles without feelin(

the worse for it. The size of his prostate has sensibly diminished.

These results became still more marked after the second season, and the patient has been able to resume the long walks and the shooting excursions which he delighted in.

We might multiply these examples in which the patients are all men of more than forty years of age. In young patients, as may be easily understood, the results are quite as rapid, and those among them who require the tonic treatment recommended by the English writer are benefitted by the fortifying effect of the Contrexéville waters, which is powerful enough to restore their general health while curing their local ailments. We have mentioned in preference, among the cases observed by us, those patients the confirmation of whose cure we have been able to authenticate several years after their recovery.

In cases of hypertrophy of the prostate the treatment is rather applied to the complications of the disease than to the disease itself, which it is very difficult to modify. We shall not speak of vesical catarrh, a frequent com-

plication of prostatic hypertrophy; we could only repeat what we have said in the preceding chapter; but there are other cases which necessitate surgical intervention — we mean retention and incontinence of urine.

An old man afflicted with prostatic hypertrophy cannot empty his bladder without strong efforts which sometimes produce ruptures; the desire of making water is frequent, especially during the night; the jet now distorted into a spiral shape, bifurcated, falling drop by drop, now stopping suddenly, then continuing to fall without projection; the need of letting water is sometimes so imperious that the urine escapes without the patient being able to keep it back; lastly, a complete retention of the urinæ occurs either by degrees, or abruptly and generally without any appreciable cause.

At other times one might fancy that incontinence exists, and the patient has the greatest difficulty in keeping back his urine which flows against his will; but here again it is rather a retention that occurs; in reality the bladder of these patients, permanently dis-

tended by the accumulated liquid, no longer contracts itself, and it is the overflow of the urine alone that runs out by breaking through the passage : this is what has been called making water by *overflow* (*par regorgement*).

The only rational treatment in these different disorders of the bladder and which has been adopted by surgeons consists in repeated catheterisms and washings of the bladder.

If the disease has not reached its last period, the Contrexéville waters will act very efficaceously in such cases by restoring vesical contractility and by diminishing the size of the congested prostrate ; the use of the waters as a drink, which must always be moderate at first and carefully watched, will be helped by hip-baths in running water, by local douches and vesical washings with the mineral waters by means of the double-current probe. I have been able in this way to send through the bladder of certain patients, without tiring them, as much as 20 *litres* of mineral water, and I have thus obtained results which the water prescribed only as drink did not give.

This mode of medication only suits patients whose bladder is already accustomed to injections, and it requires to be applied with great prudence, especially with reference to the temperature of the injected liquid and to the strength of the injecting reservoir, which must always be moderate, if one wishes to avoid all chance of failure. In any case, an ordinary hydro-mineral treatment is sufficient to bring about an improvement in prostatic hypertrophy when this disease is not accompanied by one of those vesical disorders against which there is no ressource. The oldest patients, under the influence of the cure, find their *vesical contractility revived* and can send the liquid contained in the urinary reservoir over the prostatic obstacle ; the hypertrophied gland, distended, diminishes more or less in size, and one often observes, as in the following case, so great an improvement that it relatively amounts to a cure.

Count de V—, aged 65, comes to Contrexéville in July 1872 with the following symptoms : costiveness, heaviness in the anus, *scalding* sensation in the perinæum, enormous

prostate projecting into the rectum and deviating from the canal of the urethra; frequent need to void urine and which occasions pain; no jet; the urinæ fall without projection and in small quantities at a time. Four months before a retention of urine has necessitated the use of a probe. Treatment: drinks, tepid hip-baths, then lotions and perineal cold douches. All are well borne without any particular accident. No great result observable at the departure of the patient, but the result becomes apparent after the visit, as is proved by the following letter addressed to me in 1873 by the patient, who asks me whether a second season is necessary: "In the course of the month of August which followed my treatment at Contrexéville I already felt an improvement in my condition; I have continued the cold ablutions, which I regularly perform in the morning and at night, besides drinking the water at the periods prescribed. The result is now surprising; I void water naturally, with a jet, without pain or heat in the prostate or heaviness in the rectum; my state

of health is such that I would declare myself satisfied if it maintained itself in the same conditions..." It is useless to add that we advised the patient to resort a second time to the spring of the Pavilion in 1873; but since that date until his death, which took place in 1879, he had no need to return to Contrexéville, and yet remained free from any vesical accident, the bladder continuing to perform its functions in a satisfactory manner.

These remarkable results, which consist in restoring to the bladder of a man of seventy-three years of age its contractile power, require no comments.

The conclusions which may be easily drawn from the facts we have mentioned above are the following :

The hydro-mineral treatment of Contrexéville produces remarkable results in chronic affections of the prostate. While it diminishes the congestion of the gland, it rouses at the same time the contractility of the bladder in an old man, however advanced in age he may be, unless the contractile power has been

completely destroyed. The mildness and innoxiouness of this treatment certainly give it a great superiority over the slow and painful method extolled by the most competent writers.

Lastly, it has the advantage of obviating the complications which, as we have seen, are in general the *causes* of diseases of the prostate, especially chronic affections of the bladder and of the urethra.

After what has been said in the preceding chapter we need not again refer to the modifications effected in cases of vesical catarrh at Contrexéville ; we shall only speak of the results which may be expected from the use of our mineral waters in cases of chronic disorders of the urethra.

We had remarked that, when the patients who came to our station in order to relieve one of the diseases usually treated there were also afflicted with urethritis, they obtained most satisfactory results with respect to the latter complaint. We therefore resolved to study the effect of the waters of the *source du Pavillon* on some of the male patients of our

Paris hospitals, whose case we could continue to observe until they were completely cured.

But no such patients were to be found, for chronic urethritis does not necessitate a stay in an hospital. We had therefore given up our design, when, in 1874, Dr. Le Pileur having complained to us of the difficulty he had in curing the female patients of the St.-Lazare hospital afflicted with urethritis, we were at last able, thanks to his obligingness, to test the effect of the waters of Contrexéville on this disease, and the results obtained exceeded our previsions.

We forwarded to Dr. Le Pileur, one of the physicians of the above named hospital, bottles of our water, and here is the summary of his observations on 50 of his patients:

In the women treated at St.-Lazare chronic urethritis is exceptionally obstinate and does not yield to the usual remedies — diuretic drinks, baths, cubeb, copaiba, cauterizations of the canal. The average length of the stay in the hospital of ten patients taken at random by Dr. Le Pileur, was of 70 days.

The use of the Contrexéville waters, in do-

ses of from two to four glasses taken in the morning, without any other treatment, determined the cure of 50 of these patients in a period varying from 5 to 16 days, which gives an average stay of nine days and a half in the hospital. In the 50 cases observed there was only one failure, which cannot invalidate the conclusions drawn by Dr. Le Pileur.

If, in male patients, the extent and structure of the organs necessitate a longer treatment, we must say that in the cases observed by us at the spring, whether the disease was acute or chronic, the results were no less satisfactory.

Although not so well known to the generality of practitioners, these properties of the Contrexéville water had however been already pointed out by an eminent specialist, Dr. Caudmont, who unfortunately has not given in an important work the result of his long experience. In a lecture delivered at the *Ecole pratique* and taken down by Dr. Legrand du Saulle, Dr. Caudmont thus expressed himself:

"The properties which the Contrexéville waters possess as regards their action on the urinary membranes, on the vitality

of the kidneys and the contractility of musculous coat of the urinary system, exp their beneficial influence on several othe fections of the same organs, such as chr nephritis, catarrh and atony of the blad chronic inflammation of the prostate, prc torrhea, chronic urethritis, morbid condi in which I have very often had occasio observe the favorable results obtained by tients who had visited Contrexéville."

Incontinence of urine in children.

Having been called upon, in 1878, by of the performers of the Contrexéville the to attend a child afflicted with nocturna continence of urine, I tried the water o *source du Pavillon* which was administ with the greatest success. I afterw made at Paris many other trials which le to write a memoir which was read before *Académie de médecine* on the 24th. of M 1880.

This report is founded on observat made in the hospitals of Paris devote

children and in private practice in the same town.

The efficacity of the treatment recommended is due to a property of the Contrexéville waters which Civiale has thus described in his *Traité des maladies des organes génito-urinaires*, in the chapter concerning vesical catarrh. "The mineral water of Contrexéville has especially the effect of reviving vesical contractility, which is always weakened in this disease."

We here give the conclusions of this memoir.

1° The waters of Contrexéville, taken in doses representing from two glasses to two pints in the twenty-four hours, according to the age of the drinkers, have produced satisfactory results in the case of ten of the thirteen patients to whom it was prescribed.

2° The action exercised by the water is explained by the power it has of stimulating vesical contractility and of giving tone to the bladder; it may thus be put on a par with strychnia, ergotine and electricity.

3° The counter-indication exists in cases

where the affection is connected with an
cess of contractility of the muscular fibr
the bladder and which are more amenab
belladonna.

The facility and perfect innoxiounes
this treatment constitute its principal ad
tages in the eyes of medical practitioners

Since the publication of this memoir I
been apprized of several cures, four of w
in the case of girls of from 14 to 18 yea
age, who had in vain tried different t
ments and one of whom had been oblig
have recourse every other day to sub-c
neous injections of ergotine.

We shall only quote the following cas
served by a distinguished practitioner of
ris :

Charles M—, a boy aged eight years a
half, lymphatic, of a weakly appearance
rather diminutive stature, is brought to Dr
leau, physician attached to the *Arc*
nationales. The patient is afflicted with
turnal and diurnal incontinence of urine
disease has withstood various treatmer
which the mother cannot precisely stat

nature, but which consisted exclusively in pharmaceutical preparations. This lady, who in her childhood had herself been afflicted with nocturnal incontinence of urine, states that even in the day time her son wets his shirt *up to the arm-pits*, and that owing to this infirmity the boy has been unable to obtain admittance into a school, so that his education is impeded. On the 7th. of December 1879 Dr. Filleau, following our advice, submitted the young patient to a treatment consisting exclusively in the use of the Contrexéville waters, — 60 *centilitres*, or about one pint, to be taken every day.

The treatment is continued until the 22d. of December, that is to say during fifteen consecutive days; at that date the cure was complete, and it has lasted ever since. Notwithstanding a diphtherite which occurred in April 1880, we saw in February 1883 this young patient who has no relapse since the 22d. of December 1879, that is to say since more than three years. Thus the cure may with good reason be considered as definitive. We therefore need not press English practi-

tioners to try a harmless remedy which may render them the greatest services among their young patients.

Diabetes.

If the clinique of Contrexéville does not entirely confirm the opinion expressed by Dr. Marchal that the majority of gouty patients are diabetic, it is true nevertheless that many of them are so without knowing it, and unfortunately they too often only become aware of the disease when it has become serious enough to resist all medication.

The results which I have obtained from the hydro-mineral treatment in cases of diabetes observed at that station are too remarkable not to be mentioned here.

Without forming any theory on the nature of this affection, on glycosuria and consumptive diabetes, we shall only state that all the patients whom we have attended and relieved at Contrexéville from diabetes had gout or gravel and were fat and even stout.

But the following facts will speak for themselves :

Mr. L—, aged 45, strong and stout, came to Contrexéville on the 10th. of June 1876 in consequence of nephritic colics occasioned by the sedentary life to which he was condemned as professor in one of our public schools. Some time before he has been tormented by an imperious thirst and he shows me white stains which his urine had left on the cloth of his trowsers. An analysis reveals an exceptional density of 1 041 and an exact dosage gives the high figure of 100 *grammes* of sugar in one *litre* of urine. I prescribe, besides the hydro-mineral treatment, the diet which best suits diabetic patients; eight days after, a new analysis only gives 25 *grammes* of glucose, and after fifteen days of treatment the sugar had disappeared. I then allowed the patient to give up the strict diet I had prescribed and to resume the use of bread and feculent food, but without ceasing the hydro-mineral treatment; at the end of six days, a third analysis shows no trace of sugar. The patient, who had not suffered

from gravel during the whole year, comes back in 1877. I examine the urinæ, — the sugar had not reappeared.

Mr. D—, a tall and robust man, of 63 years of age, came to Contrexéville for the first time in 1877. He is afflicted with gout, and diabetes which had reached 95 *grammes* per day. This latter complaint led the patient during two years to Vichy which he had left in 1876 with 30 *grammes*, notwithstanding a severe regimen which he has since given up.

On his arrival, the urine contains 38 *grammes* of sugar; eight days after, to my great surprise, a new analysis gives the same amount. I then think of ordering the patient to give rest to his genital organs, of which he abused, and a fortnight after I only find a quantity of sugar inferior to *one gramme*. In July 1878, the patient return to the spring, still accompanied however by a fair fellow traveller too young for a man of his age, and submits his urine to a fresh analysis, — the only contain, per *litre*, 4 *grammes* which rapidly disappear.

Mr. B—, a man of 43 years of age, has suf-

fered from gravel during the last ten years. He has been obliged to follow a severe treatment in order to counteract an exceptional obesity accompanied by all the accidents of polysarchia. Besides he has been afflicted during the last nineteen years with a bronchial catarrh, evidently connected with the uric diathesis, which every night awakens the patient by occasioning fits of coughing. Lastly, he is diabetic and as such subject to an intense thirst with very abundant urinæ. The latter have decreased, as well as the thirst, under the influence of a good regimen and of exercise in the open air. On his arrival however (June 3d. 1878) they still contain 42 *grammes* of glucose per *litre*. On the 14th. of July a new examination of the urine, made in the morning before the treatment, gave a density of 1015 and showed no trace of sugar.

A singular fact is to be noted in the case of this patient; although he took but small doses of the mineral waters (for they acted on him with a very exceptional power) we observed on the fifth day of the treatment the

disappearance of the accidents of the bronchial catarrh, which did not once awaken Mr. B— during the remainder of his cure.

Mr. V—, aged 60, born of a gouty father, is afflicted with flatulent dyspepsia and vesical atony. The state of the stomach, which has not been improved by a season at Vichy, has been ameliorated by a lacteal diet. He has, like many magistrates, led too sedentary a life, to the great injury of his bladder, and he makes water with difficulty; every night he is awakened three times by wanting to void water. Lastly he is afflicted with diabetes and one *litre* of his urine has contained as much as 63 *grammes* of sugar. On his arrival (July 21st.) the urinæ had a density of 1029, and contained 24 *grammes* of glucose per litre. On the 1st. of April, their density is reduced to 1025 and they show no trace of glucose, while the patient is only awakened once a night.

What conclusion is to be drawn from the observations of which we have given a summary? They show that the treatment of Con*trexé*ville suits stout diabetic patients, gouty

diabetic patients and gives rapid results in such cases ;

That these results, obtained without any special diet, prove that they are due to the mineral waters alone ;

That the use of these fortifying waters is admirably suited to diabetic patients in whom they regulate the renal, intestinal and cutaneous functions.

Hepatic colics.

The passage of biliary concretions from the vesicle into the intestine occasions excruciating pains which usually begin in the pit of the stomach, radiating towards the right, especially in the direction of the shoulder-blade, accompanied by nausea, vomiting and often followed by a more or less jaundiced complexion.

The seat of these pains often causes them to be mistaken at first for cramps in the stomach, especially when they do not last long and are not violent. How many times have we attended patients who had long been

treated for so-called *cramps* in the stomach until a violent crisis at last led the way to a true diagnostic and until the appearance of jaundice showed the part performed by the liver in the disease! My personal observations and the clinique of Contrexéville completely confirm the opinion of Professor Lasègue, when he says (1):

"We may assert that cramp in the stomach, as it has been described by some writers, *does not exist;* that almost always, if not always, when one observes a sudden, excruciating pain seated in the pit of the stomach, having no connection with the recent ingestion of food or with the introduction of a corrosive poison, and not resulting in an evident indigestion, there is reason to admit at once the existence of an hepatic colic."

Sudden, temporary pains which, having their seat in the stomach, might be mistaken for a slight hepatic colic, do not radiate towards the hypochondria and especially towards

(1) Brinton, *Traité des maladies de l'estomac,* trad. Riant. Introduction de M. le professeur Lasègue, p. 4. Paris, Delahaye, 1870.

the right shoulder ; they are generally relieved by a moderate pressure.

In cases of violent hepatic colic, the practitioner will scarcely be induced, especially at Contrexéville, to mistake this painful affection for any other than *nephritic colic*.

Before pointing out the characteristic differences which exist between the pains arising from the kidneys and those that have their seat in the liver, we must state that a practitioner, when called upon to attend a patient suffering from a colic of this nature, ought rather to think of relieving it rapidly than of forming a diagnostic, and as the same treatment suits both colics, he should defer until the end of the crisis his diagnostic, which will then be all the easier.

Here however are the symptoms which enable one to distinguish the two affections. The pain occasioned by renal colic begins either in the flank or in the loins, or far less frequently in the abdomen. The pain caused by hepatic colic usually begins in the epigastrium or in the hypochondria, and radiates towards the lower part of the shoulder blade.

The first tends to descend towards the abdomen, the second to rise towards the shoulder. The renal crisis, in male patients, brings on a retraction of the testicle on the corresponding side towards the inguinal ring. In the hepatic crisis, this symptom does not exist, but one may sometimes feel, on a level with the biliary vesicle, a more or less marked tumefaction.

Lastly, jaundice, which usually shows itself at the end of a violent hepatic crisis, will be a sure indication of the nature of the colic. In the same way, if an hematuria occurs during the crisis or precedes it, the presence of a renal colic becomes certain.

Because a crisis ends, there is no reason to conclude that the concretion has passed into the intestine; the concretion may have gone back into the vesicle and it may give rise, at a more or less brief interval, to a fresh hepatic colic. We have often witnessed a series of crises, separated by a respite of twelve and even twenty four hours, which had been momentarily occasioned by a single or by the same heap of concre-

tions. Indeed it is so difficult for the patient to discover where the *corpus delicti* lies that one cannot assert whether the biliary concretion has escaped. What renders the discovery especially difficult is the fact that the researches must be continued during a long time. Dr. Wolff, who had the patience to examine during six, twelve and even eighteen months, the stools of forty-six patients afflicted with hepatic colics, has constantly found concretions. For our part, we do not admit the existence of hepatic colic without a concretion, although the late Dr. Beau has endeavoured to prove the contrary.

The frequency and intensity of hepatic colics are most variable : they may even, in very few cases luckily, be frequent and violent enough to occasion death.

Treatment of hepatic colic. — We do not intend to enumerate here the various treatments proposed in order to relieve the excruciating pains caused by hepatic colic. We shall merely mention those which we have found efficacious in the greatest number of cases, and the list is a very short one. In mild

crises we apply chloroform on the painful part and we thus obtain a temporary respite which is sometimes sufficient to sooth the sufferer. When one or two of these applications, which offer the advantage of being easily effected, have not relieved the pain, we have at once recourse to sub-cutaneous injections of morphia, with which, except in one case, we have always obtained the desired result.

When morphia does not succeed in calming the pain, we recommend sub-cutaneous injections of chloroform, baths, leeches or chloral enemas, but we must add that the cases where chloroform fails are most uncommon.

Women, who form two thirds of the patients afflicted with hepatic colics, occupy a still more important place in the general statistics of the sufferers treated during the last fifteen years at Contrexéville, since they figure there in a proportion of 83 per cent. This is especially due to the fact that our station is more clearly indicated as a resort for debilitated patients among whom they figure [illegible] rank.

The use and above all the abuse of stays play an important part in the production of liver complaints in females, for tight-lacing impedes the functions of that organ.

Hepatic colic occurs so often during or after pregnancy that we have the right to attribute the formation of the concretions to a biliary arrest due to a purely mechanical cause.

The other causes which produce biliary lithiasis are : *a sedentary life, too long intervals left between the meals, the abuse of spirituous liquors.* It will be seen that the same causes have been mentioned as occasioning, in certain cases, gravel and even gout. Indeed one often meets at Contrexéville patients who suffer at the same time from renal and hepatic colics and, in a few cases, from gout.

To dissolve or to eject the concretions formed in the vesicle and to bring back the secretion of bile to its normal state, such are the indications which biliary lithiasis points out. The dissolution of the concretions, whether biliary or urinary, has been the ob-

ject of numerous experiments, none of which has given a satisfactory result.

The solubility of cholestrine in ether has made the reputation of Durande's remedy (composed of three parts of ether and two parts of turpentine). At present this remedy, which few stomachs can bear, has been abandoned as well as those of Sœmmering (ether joined to the yolk of an egg) and of Duparcque (ether and castor-oil). As for chloroform, so strongly recommended by Dr. Bouchut, it rather acts as an antispasmodic and ought only to be employed in cases of hepatic colic. Prof. Jaccoud, in his excellent treatise on pathology, thus sums up the result of the last scientific researches on this point: "For my part, I no longer employ chloroform and I prefer the alkaline medication, the efficacity of which I have recognized. This medication has also a chemical reason to recommend it, since cholesterine and cholepyrrhine are held in solution in strongly alkaline bile. But I take little account of that, because the action of alkaline waters rather consists in increasing the secretion of bile and in promoting the

elimination of the concretions and of the particles which produce them (1) ".

Frerichs, a uthor of a valuable work on diseases of the liver, thus expresses his opinion :

" Mineral waters have proved themselves to be the most efficacious agents against biliary calculi. The patient derives less advantage from bicarbonate of soda prescribed alone or combined with sulphate of soda; however, if the practitioner has recourse to it, it should be given in *very diluted doses.*

" The great quantity of water absorbed will not be without importance, for by penetrating into the vena-porta and by crossing the liver it will promote the secretion of bile (2)."

The treatment of biliary lithiasis by mineral waters has therefore to answer the following indications :

1° To ingest alkalines in diluted doses;

(1) Jaccoud, *Traité de pathologie interne;* Paris, Delahaye, 1875.

(2) *Traité des maladies du foie,* 3e édition, p. 834. Paris, Baillière, 1877.

2° To reestablish the flow of bile and the functions of the big gut;

3° To improve the general state as well as the local condition of the debilitated patients.

Contrexéville answers equally well these three indications : the waters, slightly alkaline, are ingested there in large doses; their laxative effect, which is proved every morning by two or three stools, frees the congested biliary ducts; the iron and the lime salts which they contain render them highly fortifying, so that one may draw the following conclusions, as we did in 1878 before the Hydrological Society of Paris :

1° The Contrexéville waters give decisive results in the treatment of hepatic colic;

2° The laxative effect produced by the ingestion of the waters renders the indication precise in the case of hepatic patients whose intestinal functions are hindered;

3° The Contrexéville waters are clearly indicated when the patient has been debilitated by numerous crises.

Although already pointed out by Dr. Bagard

in 1760, these properties of the Contrexéville waters are less universally known than those which concern gravel or gout. We therefore think it necessary to publish some of the facts observed, in order to enable the reader to judge the question.

Mrs. X—, the wife of one of the most eminent physicians of Brussels, had been subject during several years to violent hepatic colics. In 1875 she vent to Carlsbad in the hope of obtaining some relief; the treatment, which was borne with difficulty, left the patient in a state of extreme debility. After a momentary respite, the crises reappeared with an exceptional frequency and in the last stage returned at least once a week. The condition of the patient was such that her husband thought that the liver complaint was accompanied by a cancer in that organ or in the stomach, — an opinion which however was refuted by Dr. Crocq, as well as by Dr. Van Volxem and Dr. Rommelaere of Brussels. Not daring to return to Carlsbad, on account of the weakness of the patient, Dr. X— brought his wife to Contrexéville in the month of August 1876,

but her state was such that he had given up all hope of saving her.

This lady, who formerly had enjoyed excellent health and been remarkably stout, presented a truly cachectic appearance. To use her husband's expression, her bones broke through her skin; the facies, deeply altered, reminded one of that of a carcinomatous patient in the last stage of his disease; no appetite; an impossibility to swallow any food without vomiting.

A treatment consisting exclusively in water from the spring of the Pavilion, gave surprising results; the patient was able to eat and to digest small quantities of food, and at the end of twenty-eight days, she could do honour to the ordinary of a *table d'hôte;* the stools regularly followed, every morning, the ingestion of the water, and when she left, the patient could walk during one hour without resting.

On her return to Brussels, the health of Mrs. X — went on improving. The appetite was regular, digestion easy, the strength of the patient increased from day to day

and soon allowed long walks without fatigue.

No fresh crisis occurred until the 21st. of May, that is to say during eight months, and when the patient came back in July 1877, we had the satisfaction of ascertaining that her general state of health was excellent, that she had recovered her former stoutness as well as her strength. Since the last crisis, the use of *podophyllin* pills had become necessary in order to ensure regularity in the stools.

This second season at Contrexéville gave rise to no incident; the intestinal functions were restored, and as for the patient's appetite, it was such that we were often obliged to address remonstrances on this score to Mrs. X—, who has since then enjoyed excellent health.

Never, during the sixteen years of our practice at Contrexéville, have we had the happiness of witnessing such a resurrection, except perhaps in the following case :

Mrs. M—, of Moret (Haute-Saône), a woman of forty-five years of age, has been during the last six years, subject to hepatic co-

lics, which have become so frequent that it is impossible for her to state the number of them; latterly the crises have occurred at least twice a week. As for their violence, shortly before her arrival at Contrexéville, she had been given up as dead at the end of a severe crisis.

Formerly she had been more than ordinarily stout, but she now has reached the degree of emaciation which is seen in the last stages of consumption; the complexion is constantly jaundiced; the injestion of food has become impossible; the liver is enlarged; an obstinate costiveness prevails. Such was the condition of this patient when she was carried to Contrexéville in 1871.

The use of the mineral waters rapidly restored the digestive functions and brought on each day several liquid stools; the patient's appetite returned and she gradually regained her strength. Two slight crises occurred during 1872 and after a second season at the spring of the Pavilion, Mrs. M— recovered her former health as well as her former stoutness. During the time which has since

elapsed, she has had no attack of hepatic colic and enjoys excellent health.

Mrs. D—, a young woman of 25 years of age, was afflicted in 1872, during pregnancy, with what she called colics in the stomach and against which several treatments were employed without any good result. The hepatic nature of the pains was afterwards recognized and the patient's medical adviser had recourse to subcutaneous injections of morphia which proved successful. Still the crises continued, becoming more violent, more frequent, and on the 17th. of July 1876 the patient arrived at Contrexéville with the following symptoms :

Loss of appetite; digestions very painful; liver sensitive, but not much enlarged relatively; breathing slow; leucorrhœa; pains in the renal region, especially during the crises which always begin in the pit of the epigastrium; a little uric sand in the urinæ, which otherwise are normal; jaundiced complexion. The treatment, — doses of the mineral waters, baths, cold renal, hepatic and vaginal douches, — gave a very rapid result, for on

the third day a great improvement was
ceable; two stools were obtained every r
ing, the digestion became easier, the ge
condition was ameliorated; the leucor
disappeared, as well as the sensitiven
the liver when pressed and the jaundice
pect of the complexion. The patient, o
return in 1877, stated that she had ha
fresh crisis in the course of the year
added that she enjoyed such good healt
considered herself so completely cure
she would not have come back, had sh
been obliged to accompany her husban

Mrs. R—, of Bordeaux, a young wom
twenty-five years of age, was afflicted in
during pregnancy, with violent and fre
hepatic colics, to relieve which she h
sited Vichy in 1872 and 1873. Ther
thermal treatment had consisted in a c
of the waters of the *source de l'Hôpita*
patient's constitution was far too debil
to allow her to try the waters of *la G*
Grille, and the baths had to be replac
cold hydrotherapeutical douches. In
she obstinately refused to return to V

alledging that the treatment, although it relieved the hepatic pains, exhausted her remaining strength.

An hepatic colic had nevertheless occurred after the visit to Vichy in 1874; but when Mrs. R— come to Contrexéville in 1876 eighteen months had elapsed without bringing on any violent crisis. Still this patient complained of heaviness and pain in the epigastrium and the hypochondrium, the pain being also felt in the shoulder-blade. A complete loss of appetite, laborious digestions, flatulence, and an obstinate costiveness necessitated the daily use of soda and magnesia. The anæmia was characterized by a prolonged sound of blowing in the respiratory vessels, and by frequent swoons. Some lumbal pains; urinæ in which — notwithstanding a density of 1032 — urates alone were found in excess; rare micturitions and leucorrhœa, such were the symptoms of the patient on her arrival at Contrexéville.

This lady was much alarmed by her state of health, her father and her mother having both fallen victims to organic affections of the

liver. This organ, in her case, is large and painful when pressed; a jaundiced complexion accompanies these lesions.

After drinking the waters during a little more than three weeks, in progressive doses never exceeding one litre a day, — a treatment to which were added hydrotherapeutical and vaginal douches, — this patient first found her intestinal functions restored and obtained an abundant diuresis; her appetite increased, digestion became easier, without flatulency, and lastly the ingestion of the iron contained in the mineral waters was borne without fatigue, although the patient had been obliged to give up the use of all ferruginous preparations. The pain in the liver and in the loins disappeared, as well as the jaundice, as well as the leucorrhœa, towards the middle of the cure. In short, the general health of the patient was still more modified than her local condition, and six months after the treatment no one could have recognized her. The tonic and fortifying effect of the Contrexéville waters had once more proved its efficacity.

Mrs. E—, a lady of 45 years of age, has been subject during the last seven years to hepatic colics, to relieve which she has visited Vichy during three consecutive years without obtaining the desired result. The patient, besides, has suffered from renal pains during the last two years, and from August 1876 to July 1877 she has had three hepatic colics and two well characterized nephritic colics. The appetite is relatively unimpaired, but the digestions are painful; the patient is subject to stomachic flatulency, to nausea and obstinate costiveness. For four months menstrual disorders have brought on the beginning of the menostasis, coinciding, as we often see at Contrexéville, with the appearance of gravel in females. Some gouty pains in the fingers which have been but lately felt, complete this pathological summary. Micturition is easy; the urinæ are normal, if we except a slight excess of pulverulent uric acid, — they contain neither sugar nor albumen.

Mrs. E—, after drinking the Contrexéville waters at home, felt her health improved and

was almost entirely freed from the renal pains to which she was subject; she therefore came, in July 1876, to the spring which had relieved her.

The obstinacy of the costiveness rendered necessary, in this exceptional case, the use of a glass of Pulna water every morning during the first eight days of the treatment; but from the ninth, the ingestion of one litre and a half of the water of the *source du Pavillon* was sufficient to produce two liquid stools every morning; the digestions became easy, although the patient was far from stinting her appetite; and the slight pains which affected the loins disappeared. The patient voided uric sabulous matter and, saving a slight pain in the big toe of the the right foot, which only lasted two days and did not prevent Mrs. E— from walking, the treatment was borne without giving rise to any other incident and without causing any fatigue. Ten months after this season, the patient who, according to our advice, had made use of the Contrexéville waters at home, having suffered no fresh *attack of* hepatic or renal colic, refused to

spend a second season at Contrexéville. She was wrong in considering a second visit as superfluous and since then we have had no news of Mrs. E— who does not reside in Paris. Weardently hopet hat the use of the waters of our spring, taken at home, may suffice to prevent a return of the morbid accidents; but this is only possible when a strict regimen is faithfully followed.

The two following facts have been observed by Dr. Legrand du Saulle :

Mrs. D— had suffered during several years from very violent hepatic colics and was habitually afflicted with an obstinate costiveness. Her husband, one of the most distinguished members of the *Académie de médecine*, had brought her to Vichy in 1859; the crises having reappeared in the winter of the same year with all their former intensity, he called a consultation and his eminent confrères Dr. Legroux and Dr. Barth pronounced themselves in favour of Contrexéville. Mrs. D— arrived there towards the end of May 1860 and we had the honour of attending her.

Nine days after the beginning of her treat-

ment, Mrs. D—, who had not yet had a single stool at Contrexéville, was seized, on her return from the spring, with an hepatic colic of an average intensity. During the night I brought on several intestinal discharges, and two days after Mrs. D – resumed the use of the mineral waters. From that time the costiveness became a little less obstinate, and the patient, from June 1860 to June 1861, remained free from any morbid accident. The second season which she spent at our station passed off well and her health was restored.

Mr. M—, who had formerly been a notary, is a vigorous and well constituted man of 39 years of age. In his 24th. year he had suffered from hepatic colics which had been mistaken for cramps in the stomach. These colics reappeared with greater intensity in 1859 and 1860 and from May 1861 they returned every month; then came on an acute hepatitis, to relieve which Mr. M— was sent to Vichy in July 1861.

After having followed a treatment which he *had reason* to think profitable, he went

home, and in October the crises reappeared and left him no respite until the month of July of the following year, when he paid a second visit to Vichy. The results were much the same as after the first season, and in November the crises once more tortured the patient, who was obliged to give up his position as notary public and found himself in a most alarming state.

In May 1864 he made up his mind to try the Contrexéville waters and followed, under the care of Dr. Legrand du Saulle, a treatment of twenty-one days which consisted in drinks from the mineral spring and in protracted baths; thanks to this treatment he voided, not without severe pains, a certain quantity of biliary concretions.

In the month of september of the same year he spent at Contrexéville a second season during which calculi were also expelled, but this time with much less pain, and he left the station quite a different man, for he was able to become the manager of the establishment to which he owed his cure; and his health, during the thirteen years of his mana-

gement, has been and continues to be most satisfactory.

We must add that the mother of this patient had suffered from a disease of the liver for which she had tried the waters of Vichy during several consecutive years.

In 1862, Mr. N—, a strongly constituted man, was suddenly afflicted, in his 32d. year, with a renal colic, followed the same year by an hepatic colic, which was difficultly soothed by the means employed at that time, when sub-cutaneous injections of morphia were as yet only used by way of experiment. Sent during five consecutive years to Vichy, he continued to be afflicted every year with hepatic colics which generally ended in a fit of acute gout, having its seat in the big toes.

In 1867, when the crises occurred every six weeks and were relieved by sub-cutaneous injections of chlorhydrate of morphia, the patient came to Contrexéville, where he returned every year until 1871. The crises, less frequent and less severe, were no longer *followed by* an attack of gout; after the third

season they entirely disappeared. The patient, considering himself cured, ceased in 1872 his annual visits to the spring of the Pavilion.

After a respite which lasted three years, Mr. N— was seized, in the spring of 1875, with an exceptionally violent attack which necessitated a rest of several months in the country, and when in the month of August of the same year he came to Contrexéville his complexion was still jaundiced and he was far from having recovered his strength. Under these circumstances and as the liver still seemed obstructed, we advised the patient to limit himself to the ingestion of small quantities of the mineral waters, for fear of bringing on a fresh hepatic colic. This fear unfortunately was realized and the attack was a most severe one. We soon witnessed the following phenomena : daily shiverings, followed by a violent fever, a bronze-coloured jaundice, a projecting tumour formed by the vesicle. Quinine and an application of leeches produced satisfactory results, but the injection of morphia, on this occasion

was not sufficient to sooth the sufferings of Mr. N—, and it was only thanks to the inhalation of a few grammes of chloroform that the pain was quieted.

To close the history of this patient, whom we saw again every year at Contrexéville, we shall add that he had another crisis in December 1876 and that ever since his state of health has remained most satisfactory.

During this last crisis, Mr. N— again obtained decisive results from sub-cutaneous injections which rapidly relieved his sufferings. The case of this patient, whom it was our duty to mention as the only example of the failure of morphia observed by us at Contrexéville, confirms much more than it invalidates the constant success of that kind of medication in hepatic colics.

A more or less deeply tinged jaundice has always followed, in the case of Mr. N—, each hepatic crisis; since his first visit to Contrexéville in 1867 *he has not had another attack of gout.*

Lastly, to close this rather long enumeration of the results of the hydro-mineral treat-

ment of diseases of the liver at Contrexéville, we shall mention a fact which, though not connected with lithiasis or biliary gravel, is very remarkable and instructive :

Mr. B— was introduced to me (May 30th. 1877) by Dr. Van Volxem, of Brussels, who gave me the following information :

" This patient has been afflicted during many years with a chronic hepatitis for which he has undergone numerous treatments. Two seasons at Carlsbad have greatly relieved him; but fearing the debility produced by the Carlsbad waters, I have advised him to spend a season this year at Contrexéville. "

" The affection is characterized by an increase of the size of the liver, irregularity in the biliary secretions and habitual costiveness, which a regular use of the Friedrichshall waters has conquered. The complexion is jaundiced, the patient suffers from constant sleeplessness, without agitation. Mr. B — follows a very regular regimen, without excesses of any kind, and takes a great deal of exercise. I attribute to this good hygiene

the improvement which has taken place in his affection."

The bearer of this letter completed the information which it contained and told me that his disease had begun in 1842. At that time, during a journey in Italy, he had been seized with a severe intermittent fever, which brought on such a state of anæmia that he was obliged to remain three months at Marseilles before he could return to Belgium. At that time he suffered from persistent bilious vomiting and an obstinate costiveness. He was sent three times to Hombourg in order to restore his digestive functions and obtained no good result at that station. After various treatments, which were attended with no better success, he was sent to Vichy in 1867, but he had to give up the treatment at the end of a few days, for an obstinate costiveness did not allow him to continue it.

At last he went in 1872 and 1873 to Carlsbad where he followed a treatment consisting in baths and in drinks (one litre of the waters *of the* Mulhbrunn spring in four doses).

Although borne with difficulty, these cures gave a satisfactory result, and the patient presented the following symptoms on his arrival at Contrexéville:

The liver is enlarged and projects beyond the short rib to the extent of about three *centimètres;* the costiveness is conquered by a glass of the Friedrichshall waters taken every other day; the digestion is slow; every meal is followed by an invincible somnolency, but at night the patient constantly labours under insomnia. The urinæ are not abundant, but the general condition is relatively satisfactory, for the patient, who is 60 years of age, is able to take walks which last an hour or two.

On the second day of the treatment the patient drinks one *litre* of the water of the *source du Pavillon* and obtains a natural stool; on the tenth day, he obtains two or three liquid stools every morning, as well as an abundant diuresis by drinking two *litres* of the mineral water; a strong appetite, developped by this treatment, necessitates a copious meal which is easily digested. No

somnolency follows the meals, and the patient on the other hand is able to rest at night.

This lasted until his departure, and notwithstanding exaggerated meals, the digestions were always easy, and the jaundiced tint almost entirely disappeared. The external treatment had consisted in baths at first; then (during the last fifteen days of the cure), in cold douches which were borne without the slightest fatigue by the patient, who thus compared the effects produced on him at Carlsbad and at Contrexéville: "I drink eight glasses of water at Contrexéville more easily than I could take four half glasses at Carlsbad. The latter always brought on fever and such an irresistible somnolency that I continually gave way to it and that people often had to awake me in the open air; when I got back to my room I used to shiver so that I was obliged to wrap myself up in a blanket."

Thus, in this case, the regular secretion of bile and the digestive functions were restored much more completely and more easily *by the* waters of Contrexéville than by those

of Carlsbad, the laxative effect being also obtained without fatigue, while the general condition of the patient was improved in a very striking manner. We shall not mention Vichy in this case, since at the end of six daysthe patient had to give up drinking the mineral water of that station, which, notwithstanding an addition of sulphate of soda, failed to remove the costiveness.

We shall close this statement by quoting the words of Mr. B—, who ever since has returned every year to our station and who said to us : " My family and all my friends declare that the Contrexéville waters have made me ten years younger, and I continue to feel their good effects, though I have too often forgotten the regimen which I fully meant to observe. "

We might add to this already long list the complete cure (obtained after two seasons spent at Contrexéville) of the wife of a celebrated London physician whose name is as well known in France as in England. But the clinical facts which we have quoted already exceed the limits of our little Guide.

It is true however that the Contrexéville waters, the efficacity of which is so universally recognized in the treatment of gravel, gout, and vesical complaints, are much less known as a powerful remedy against diseases of the liver, so that the examples we have given will prove useful.

The regimen to be observed by patients afflicted with hepatic colics, if they wish to get rid of their painful disease, includes three essential points : regularity of the digestive functions, diet, and exercise.

The regularity of the stools will be obtained by means which must vary according to the susceptibility of the patient; the purgative mineral waters of Pullna, Birmenstorf, Friedrichshall and Hunyadi-Jänos, taken in small doses, castor oil, enemas, podophyllin, in pills may be usefully employed.

As for the diet, unctuous or highly-spiced food and alcohol must be proscribed; on the contrary, green vegetables, fruit, and grapes ought to be recommended.

Lastly, exercise in the open air is indispensable when a patient suffers from biliary li-

sis; walking in the case of women, — ıg, gymnastics, fencing, in the case of , will help to prevent the return of he- c colics.

CHAPTER IV.

Effect of the mineral waters when taken at home. Hygiene of the patients. — Conclusions.

Like all other mineral waters, those of Contrexéville give far better results when taken at the spring than when used at home. Nevertheless we meet every year at Contrexéville patients who, having obtained a more or less noticeable improvement from the use of the bottled waters, come to our station in order to obtain a complete cure. Baths, different kinds of douches, and various external applications of the water then help to increase the effects of the ingestion of this same water which are always more considerable at the spring that at home.

The home treatment is indicated in the case of most of the patients who have spent a season at Contrexéville, either to forward the results already obtained or to prevent *return of* the accidents which, in an inveter-

or hereditary chronic disease, are always to be feared. The doses and the period of these complementary treatments are generally indicated by the medical adviser on the departure of a patient. The following advice is only addressed to those who have not yet found their way to our station.

The two most important recommendations to be followed by such patients concern the choice of the spring and the manner in which the waters should be taken.

As regard the first point, we advise all patients afflicted with gout, gravel, diseases of the bladder or of the liver, to use the water of the *source du Pavillon ;* the water of the *source la Souveraine* must only be employed in exceptional cases. They should endeavour to obtain the water as fresh as possible, and for that purpose apply directly to the hydro-mineral establishment at Contrexéville, or to the *Dépôt central* (Paris, 31, Boulevard des Italiens), from which the greatest part of the 600 000 bottles consumed every year is despatched. It is needless to insist upon this recommendation, for the

reader will easily understand that the water is all the more active for having been more recently bottled. Does this mean that time destroys its properties? No, certainly not, if it is well bottled, according to the system actually employed at the spring under the eyes of the drinkers. Among other examples, we can quote the case of a patient afflicted with gravel and who expelled a calculus after drinking water from our spring which had remained seven years in bottle. We have insisted on this point because it has been wrongly asserted that the Contrexéville waters could not be kept beyond a certain time. We must explain how this mistake arose.

The former owners of spring *la Souveraine*, which has only belonged to the establishment since 1876, used to export every year nearly 100 000 bottles of mineral water which were sold at a low price. These bottles, instead of being new, like those used at the spring of the Pavilion, had previously contained waters from Saint-Galmier, Vals, Vichy, Orezza, &c.; they were not rinsed carefully

enough to prevent a small part of the more or less adherent deposit which stuck to the glass from remaining in some of them; this occasioned a decomposition and a development of gas which rendered the water undrinkable. The low price naturally induced apothecaries — when the spring was not specified and when a customer merely asked for Contrexéville waters — to give the preference to the spring *la Souveraine*, and this fact explains the regrettable error of which the spring of the Pavilion was the innocent victim.

Now the waters of both springs are bottled, corked and capped with the same care. The complaints which used to reach the managers have ceased, and the sale of the waters of the *source la Souveraine*, no longer obtainable at a lower price, has fallen 70 per cent, while the consumption of the waters of the *source du Pavillon* has increased at such a rate that I have seen it become six times higher than it was twelve years ago.

The second recommendation which should be attended to by those who wish to make use of the Contrexéville waters at home re-

fers, as we have already said, to the method to be followed. At what hours and in what quantities must the mineral water be taken?

It is easier to lay down a general rule in answering the first question than in replying to the second. Indeed, in most cases, the mineral waters should be taken in the morning, fasting, and not, as is too often done by patients who have not visited Contrexéville and who drink them at their meals mixed with wine, using them in the same way as the waters of Saint-Galmier, for instance. But the reader will at once understand that it is difficult to lay down general rules with respect to the quantity of mineral water to be taken. The nature of the disease, the age, the sex and the constitution of the patient must be known before the physician can draw up a prescription. We therefore confine ourselves to the following indications, which the medical adviser will find useful and which he can modify according to the nature of the disease and to the effect of the mineral water on the patient.

We shall therefore say that, generally, in cases of *gout* and *gravel :*

1° The water, when used by the patient at home, should be taken in the morning with empty stomach;

2° The doses (usually of half a pint) should be separated by an interval of from fifteen to thirty minutes ;

3° The first meal should not be taken until one hour, at least, has elapsed since the last glass has been absorbed ;

4° It is indispensable to take a little exercise during the ingestion of the water.

The best would be to take exercise in the open air, which is often possible for those who live in the country or who have a garden.

The dose prescribed in cases of gout and gravel very seldom exceeds one bottle a day for patients who follow a treatment *at home;* it is always higher when the water is taken at the spring itself.

If the patient's occupations do not allow him to devote an hour to his treatment by the mineral water, he should drink the remain-

der of the bottle at breakfast. But the water then loses a part of its properties and is no longer sufficient to determine the expulsion of renal concretions.

A regimen *suited to the nature of the gravel* (or the constitution of the patient) is necessary during the home treatment; when it is not followed, the effect of the treatment is less satisfactory and sometimes it gives no results at all. This regimen must vary according to the cause which has occasioned the disease.

It is often indispensable and always useful, before beginning a treatment by any kind of mineral waters, to make use of a *light purgative*. In the present case, saline purgatives should be preferred; and by this we mean that sulphate of soda or of magnesia, the waters of Pullna, Birmenstorf, Friedrichshall, Hunyadi-Janos, &c., may be prescribed indifferently. The dose will vary according to the medecine employed and to the effect produced by purgatives on the patient. The alimentary duct will then more readily absorb the mineral principles contained in the Contrexé-

ville waters and their action will be more efficacious.

Patients suffering from *hepatic colics* should not neglect this prescription; they must also, like those afflicted with gravel, drink a dose which will vary according to their sex and constitution, but which will usually amount to one bottle a day, to be taken in the morning, fasting. We think it needless to remind females, who at Contrexéville form the majority of the patients suffering from biliary lithiasis, that they must not begin a treatment during menstruation and that when the menses occur in the course of a treatment it will often prove useful to interrupt it for a few days.

In *affections of the bladder* (*chronic cystitis, vesical catarrh, hypertrophy of the prostate, vesical atony, paralysis of the bladder*) it is equally impossible to establish rules applicable to all patients indiscriminately. Some of them will be benefitted by adopting the treatment prescribed for gravel; others ought to divide the doses in the following manner: two glasses in the morning, fasting; a third glass

one hour before dinner; the last just before going to bed; others should limit themselves to one glass in the morning and drink the remainder of the bottle at breakfast and dinner. The reader will understand how much caution is necessary when he recollects that some of these patients suffer from an exaggerated vesical susceptibility which requires, at the beginning of a treatment at the spring, the greatest circumspection; nevertheless we have had no occasion, thanks to our prudence, to advise even one of those patients to give up the treatment, while the accidents which some of them suffered were always caused by the too great quantity of mineral water absorbed by them *without prescription.*

The home treatment should be continued during *fifteen days* at least and during *thirty days* at most.

However there are cases where the ingestion of ten bottles a month should be prescribed. The medical adviser, while watching from day to day the effect of the treatment, will also judge how long it ought to last.

The bottles should be kept in a cool place;

the ordinary temperature of our wine cellars is very nearly that of the spring of the Pavilion (11°,5), the waters of which are almost exclusively employed by patients who drink them at home, while those of the *source du Prince* and the *source du Quai* are always taken on the spot, those of the spring *la Souveraine* only being used exceptionally.

Such are the summary indications which we can offer those patients who have been advised to use the Contrexéville waters at home. We need not add that, like all other mineral waters without exception, they will prove less active than when taken on the spot, and that the effects produced at the spring by their ingestion, by baths, different kinds of douches and all the other external means are much more remarkable than those produced on the same patient who uses the waters at home. In the latter case an improvement is often obtained ; but it is only at Contrexéville that we have been able to obtain cures which the use of the waters at home had facilitated.

In the chapter devoted to liver complaints

we have already spoken of the hygiene to be adopted in cases of hepatic colics. We shall now say a few words on the regimen necessitated by the other diseases treated at Contrexéville, especially gout and uric gravel which afflict two thirds of the patients who visit our station. But we must begin by asserting that *unless the patient follows a regimen no cure is possible*.

In the uric diathesis, those afflicted with gout or gravel should first of all pay attention to their diet.

The quantity and especially the quality of the food consumed often occasion that surplus of the receipts over the expenditure of the human economy which inevitably produces uric acid.

Among the most hurtful kind of diet, in these affections, we must give the first place to meat, especially to brown meats — game, beef, mutton. Nevertheless it is a mistake to fancy that animal food does as much harm as is generally supposed. Spiced and salted food, a rich fare are quite as dangerous.

Spirituous liquors are far more pernicious

and play an active part in the formation of uric acid. An over indulgence in wine and alcoholic drinks has brought many visitors to Contrexéville. Sparkling wines, as Professor Bouchardat has shown, should especially be avoided by a patient suffering from uric diathesis, for they increase the quantity of the uric deposit. Any one, says our eminent master, can convince himself of the truth of this observation ; he has only to examine the urinæ voided by a patient during the night which follows a meal where the supply of champagne has been abundant. He will then almost always find a deposit of uric acid. After quoting the opinion of a writer who is an authority in such matters, we may add that we have often observed the same results in our patients after the ingestion of a moderate amount of Burgundy-wines, while the same quantity of Bordeaux did not produce uric acid. This remark also applies to Spanish wines and to alcoholic wines in general. Cider (especially when old and used by persons not accustomed to drink it), strong beers give the same results.

Next to alcoholic drinks, Mr. Bouchardat places greasy aliments which, taken in too great quantities, favour in the long run the formation of an excess of uric acid. We have not been able to verify this opinion of the learned professor; neither have we had occasion to ascertain whether he is right in asserting that sugar, taken in large quantities, also exerts a pernicious influence. This writer adds that certain vegetables are regarded as hurtful. "Some authors, he says, attribute a considera e influence to asparagus, to French beans. These are questions which deserve to be carefully investigated".

Here, on the contrary, we must state what our experience and our numerous observations have taught us. If the use of asparagus does not produce appreciable phenomena in every case of gravel, it is nevertheless followed in a considerable number of cases (we might say in twenty out of a hundred) by more or less severe renal pains and sometimes, at a short interval, by a renal colic. We have never seen it give rise to the expulsion of a greater quantity of uric acid. This fact leads

us to suppose that asparagus do not produce uric acid, but that *by occasioning a temporary congestion of the kidneys which already contained uric acid, they facilitate the agglomeration of the sabulous matter and may give rise to the formation of small calculi.*

As for French beans and sorrel, which we must add to this list, they act in a different manner. They cause renal pains much more rarely, but their ingestion is more frequently followed by an emission of uric acid. Still, a certain number (not more than 6, or at the utmost 8 per cent) of the patients affected with gravel whom I have attended complained of pains after eating sorrel, while scarcely 3 of them out of a hundred suffered after eating French beans. In some cases the effect was so evident that the patients, though fond of that vegetable, gave up eating sorrel of their own accord.

Of course I here speak exclusively of patients affected with uric gravel, usually voiding red sabulous matter or red calculi, and not oxalate of lime. Nevertheless I must mention a fact which the microscope alone

has enabled me to certify : the urinæ of those who are afflicted with uric gravel very often contain, together with crystals of uric acid, crystals of oxalate of lime. I have found this to be the case in at least one third of the microscopic observations which I have made at Contrexéville.

There is another vegetable to which it is necessary to call attention, and here our remarks especially concern the inhabitants of Spain, of America and of the English colonies. We mean tomatas, which, frequently used in those countries under the form of tomata soups and green tomata salads, are as dangerous as sorrel for patients suffering from gravel.

There perhaps exist in distant countries other eatables which a person afflicted with gravel should avoid, but they are little known in France. I shall therefore merely remind my brother practitioners that if their patient is an American, an Egyptian or a Spaniard, it would be useless to forbid him to eat sorrel, since he seldom or never indulges in such fare, while on the contrary he makes a free

use of red or green tomatas. In other regions, in the north of France for instance, tomatas on the contrary are seldom eaten, and sorrel forms part of the daily fare.

Physical Hygiene. — Want of exercise is often the only cause of uric gravel among the inhabitants of large cities — especially among those of Paris — whose habits, tastes or occupations are too sedentary to be conducive to health. No doubt these same patients sometimes eat too much or rather they indulge in too rich a diet; but there are some among them who, chained to a desk by their professional duties in vain endeavour to make amends by their abstemiousness and by observing a strict regimen; the want of muscular exercise prevents a complete oxydation of their food and condemns them to suffer from gravel.

On the contrary, when patients of this description follow the regimen which I have thought fit to prescribe and let no day pass without taking such exercise as suits their age and their kind of life, very satisfactory results are obtained. Only to mention one example, I shall quote the following case :

Mr. R— resides in Paris; his fortune, his position, the society he frequents, added to the liberty which he enjoys as a bachelor, allow him to satisfy his taste for good cheer, and although there is nothing to prevent him from doing so, he takes little exercise. As a natural consequence, he had several fits of gout and was also affected with gravel. In 1872, following the advice of Professor Charcot, he came to Contrexéville to seek relief from the spring of the Pavilion. A first season brought about a considerable improvement; but having, on his return to Paris, at once resumed his former mode of life, he was again afflicted with an attack of gout in the month of March of the following year, and in the month of June he voided two small calculi. When he came back to Contrexéville in 1873 he at last understood how necessary was the exercise which we had urgently recommended and made up his mind to fence every day for at least thirty or forty minutes. Since then, notwithstanding a rich fare and a more than ordinary appetite, he has had no fresh attack of gout or of renal colic. It is

true that every year he has tested the efficacity of the spring of the Pavilion ; but considering that truffles, Burgundy and other generous wines too frequently form part of his diet, the mineral waters alone could not have preserved him from gout and gravel, if a greater expenditure had not allowed him to consume a greater quantity of food.

I might quote, as a counterpart to this observation, the case of two young ecclesiastics educated in the great seminary of Saint-Sulpice, neither of whom were affected with hereditary uric gravel. Here an excess of nutriment had evidently not contributed to determine the disease, for the fare of the seminary was quite different from that of Mr. R—. We had on the contrary to deal with gravel occasioned by want of exercise, and also by what Professor Bouchardat, so often quoted by us, considers a determining cause, — that is to say *insufficient breathing*, as occurs when people lead an absolutely sedentary life, when the air is viciated or not abundant enough, when the heated atmos-

phere of a school-room impedes the functions of the lungs.

It is evident in this case, which is that of many persons employed in public offices, walking in the open air and appropriate muscular exercise are the most efficacious preventive remedies.

Moral hygiene. — Lastly, *violent emotions* may also occasion, but much less frequently, the sudden appearance of gravel. This fact is scarcely mentioned by the authors who have studied the question. Mr. Bouchardat alone, in his memoir on gout, gravel and urinary calculi, published in 1867, says that strong emotions, — a violent fit of anger for instance, — may occasion a temporary uric diathesis. We have observed thirty-five such cases, and this number proves that they are relatively frequent. Unfortunately, the disease is then far from always being a transitory one, especially if the moral cause is one that leaves a lasting grief.

Among the facts observed by us, we shall only mention the following :

Mr. T—, a gentleman of 45 years age, of a

good constitution, but easily moved, suddenly learns that he has lost a considerable fortune. Although born of healthy parents who had shown no trace of uric acid, although he had led an active, sober life and had never observed any sabulous matter in his urinæ, he was unexpectedly affected with violent renal crisis, followed by the expulsion of a calculus of uric acid.

Mrs. D—, of an equally good constitution, loses at the same time her husband, who occupied a very high position, and her fortune; she is obliged to work in order to support herself and her little daughter. This lady, only 33 years of age at the time, sees her menses suppressed and is seized with a violent nephritic colic. Nine years later, in 1872, after a single season spent at Contrexéville, the menstruation becomes regular and the crisis disappear.

Mr. K—, during the last war, loses his only son and remains, like his wife, inconsolable; a short time afterwards, he has a fit of gout and is affected with gravel, while his wife becomes subject to hepatic colics.

It is useless, I think, to multiply such examples, for those which I have just quoted seem quite sufficient to prove that painful emotions can produce gravel.

These different causes may all be found combined, and I have too often met with cases where they were united either by the patient's own fault, or without his being to blame. Some patients for instance, whose parents had been affected with gravel, eat too much or live too well; others lay no restraint on their appetite and yet take little or no exercise. In any case, it is certain that if violent emotions bring on an attack of gravel in people who until then had enjoyed good health, their effect is equally felt by patients already affected with this disease; many of the latter, when grieved or annoyed, suffer from renal pains, — this is a fact which I have frequently had occasion to notice.

A last accessory cause of the production of uric acid, but which affects gouty patients more than those who are subject to gravel, is the obstruction of the cutaneous functions. This will be easily understood when we re-

member that uric acid is partly expelled by the skin. Hence the utility of frictions in such cases. They are indeed so useful that Sydenham used to say that a man who was rich enough to keep a slave to rub him every day would remain free from gout. What Sydenham said of gout, is equally applicable to uric gravel.

In cases of gravel formed by oxalate of lime the hygienic rules are pretty much the same as those mentioned above. We must add however that here the patient should strictly avoid any kind of food containing oxalic acid, for this acid is found even the urinæ of healthy persons who make use of such food. I have often, — like some of my fellow practitioners who have tried the experiment, — discovered octahedral crystals of oxalate of lime in my urinæ after eating a moderate quantity of sorrel. The following are the bodies which contain oxalic acid : among those used as food, sorrel, tomatas, watercresses, French beans, oranges, the pulp of apples and pears, unripe fruit, celery and wine-claspers; among medecines, rhubarb

and ginger (which in England are also used as food), smallage, bistort, turmeric, fennel, red gentian, orchanet, patience, valerian and soap-wort. Lastly, some drinks may also occasion oxaluria; these are beers rich in carbonic acid, cider and certain sparkling wines.

In *phosphatic* or *white gravel,* the urinæ, as we have seen, are always more or less alkaline. We have also seen that this alkalinity arises from various causes : the abuse of alkalines or an herbaceous diet consisting principally of fruit, herbs, vegetables, strawberries.

Here the indication is clear. A diet contrary to that recommended in the case of uric gravel should be adopted by these patients, that is to say an animal and tonic, though not-exciting diet, of which beef and Bordeaux wine will form the chief elements. This regimen will especially give good results in cases of primitive phosphatic gravel, when the seat of the complaint is in the kidneys; if, on the contrary, the bladder is the only seat of the disease, as occurs in old men, recourse

should be had to a local treatment (catheterism) which has nothing to do with hygiene.

We shall only add, before closing this summary, that our recommendations must often be modified according to the constitution of the patient. Those who suffer from atonic gout or from gravel occasioned by too sedentary habits may adopt a much less strict diet than strong gouty or gravelly patients in whom the crisis leave few traces. A sufferer from atonic gout, in particular, would commit a great mistake by becoming a water-drinker. He would thus aggravate his disease, as shown in too many cases which have fallen under our observation. It is the duty of the medical adviser, who knows his patient, to lay down the proper hygienic rules.

It is moreover of the greatest importance for a gouty patient to know himself and to be able to appreciate the regimen which is most suitable, not to gout, but to *his gout*. This knowledge will be obtained if he pays attention to the influence of exterior circumstances on his constitution. He must endeavour to ascertain the physiological measure of his

constitutional force, to judge the effects
duced on his hereditary or acquired go
a change of climate (1), by the habits
he has contracted, by exercise, and b
or that kind of food. He will thus be
to determine safely what he ought to d
what he should avoid.

We have not judged necessary to ente
long details concerning the hygiene
followed, since the prescription must
according to each case, and we close
short recommendations by advising o
tients to meditate on the axiom laid do
our great fabulist La Fontaine :

> ... Goutte bien tracassée
> Est, dit-on, à demi pansée.

and by insisting on the necessity of th
of exercise which best suits each of th

(1) Climate has a great importance in gout
and cold climates are injurious; on the cc
warm climates often give good results. A
spent in Algeria or on the shores of the Medite
sea is generally very beneficial to a gouty pati

CONCLUSIONS.

We think that, in this little *Guide,* which is the fruit of sixteen years of medical practice at Contrexéville, we have clearly shown the remarkable results obtained by the hydro-mineral medication.

If we have not laid much stress on its effects upon gout and gravel, we have on the contrary given a greater development to the results which patients may expect in diseases of the liver or of the prostate and in gouty diabetes, because the results obtained in such cases are not so well known to the generality of medical practitioners.

We cannot insist too much upon the *tonic and fortifying* effects of the Contrexéville waters which have been one of the chief causes of the ever increasing vogue of that station, and with reference to this point, we submit the following reflections to our readers.

The medical generation which preceded ours constantly had recourse to blood letting; ours has substituted a tonic medication to an antiphlogistic one, — so much so indeed that a house-surgeon may leave the hospitals without having bled a single patient! This revolution is not an isolated fact; it has occurred in Germany, in England, in Italy, as well as in France. Why so? Dr. Rodet, formerly head surgeon to the *Hôpital de l'Antiquaille* of Lyons, gives us the reason in a remarkable lecture delivered in 1877 before the Medical Society of that city. Medical constitutions undergo a change, the organic conditions of patients are no longer the same, and where the inflammatory element once predominated we now find bilious and asthenic forms with complications of nevrose and anæmia, two words which are now constantly in the mouth of medical men. It is precisely because we have to deal with an anæmic generation that Contrexéville is destined to benefit an always increasing number of patients, whom the deglobulization occasioned by strong alkalines helps to weaken still more,

a fact which called forth from Trousseau a cry of alarm heard by the whole medical world. And yet our regretted master was not acquainted with the experiments of Dr. Climent quoted in our work on *the causes of gravel,* which prove that, after the absorption of eight grammes of bicarbonate of soda during six days, the red globuli were found to have fallen from 4 500 000 to 3 280 000 in one cubic millimètre of his blood!

THE END.

Paris. — Printed by A. HENNUYER, rue Darcet, 7.

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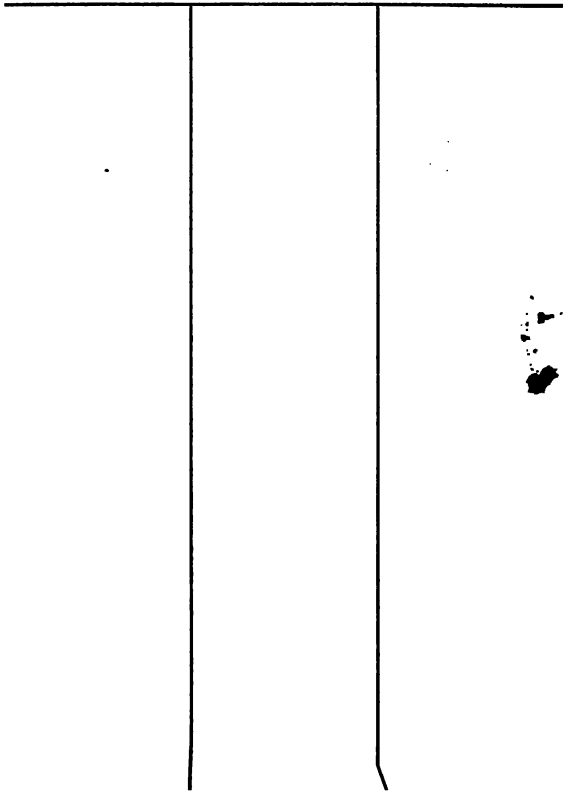

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